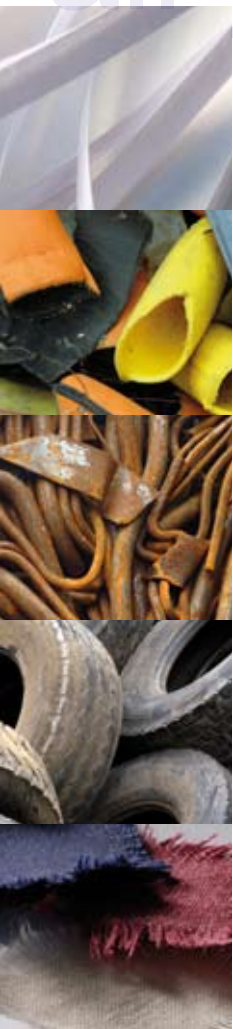# Tools for Environmentally Sound Management

all you need

for an ISO compliant Environmental Management System that includes OECD Core Performance Elements for the World's Recycling Industries

all you need

Bureau of International Recycling

BIR

Preface

With these tools the Bureau of International Recycling aims to assist recyclers, whether members of BIR or customers of BIR members, to demonstrate their Environmentally Sound Management. BIR stands for free and fair trade in recyclables and recycled materials and maintains that any company that is properly licensed, permitted or otherwise authorised by its local, state or national authority to carry out its business should not be hindered in accessing its required material infeed whether from national or foreign suppliers. However, regarding international trade in materials classified as wastes, the Competent Authorities of certain exporting countries require proof that the importing company is environmentally soundly managed. Therefore these tools may be particularly useful to companies that import materials classified as wastes from countries or regions with strong protection laws for human health and the environment. This initiative is intended to enable trade in recyclables or secondary raw materials.

There has been a general and almost worldwide obligation since 1998 that hazardous wastes should be managed in an environmentally sound manner through the UN-EP Basel Convention. More recently the OECD has, through its Council Recommendation C(2004)100 of 9 June 2004 on the Environmentally Sound Management (ESM) of waste, recommended that both recovery and disposal operations and both hazardous and non-hazardous wastes should be Environmentally Soundly Managed. The OECD recommendation on Environmentally Sound Management elaborates 'ESM' as a combination of a set of Core Performance Elements integrated with an Environmental Management System such as ISO 14001 or EMAS or equivalent.

The Bureau of International Recycling held its initial workshop on "Environmentally Sound Management: ISO 14001 and Core Performance Elements" at the BIR Convention in Monte Carlo in May 2002. Since then the BIR has, at its Conventions, regularly advised on the progress of the work in the OECD and held other workshops on this subject.

Here BIR provides via the Internet for all, and in hard copy for its members, the necessary information for Companies in the Recovery and Recycling sector (Scrap Collectors, Sorters, Processors and Consumers) to implement an ISO Environmental Management System that incorporates the defined OECD Core Performance Elements. Companies may then show, after implementation, verification and certification that they are Environmentally Soundly Managed, in other words demonstrating compliance with appropriate Core Performance Elements by using the Environmental Management System ISO 14001:2004.

Furthermore these tools made up of the basic elements of ISO 14001 are meant to be complementary to any tailored sectoral Environmental Management System, and to any already developed national Environmental Management System, based on the ISO Standard. Also these tools enable the OECD Core Performance requirements to be incorporated into those tailored or national systems. Incorporation of the OECD CPEs in that way should take into account: the size of the enterprise, especially the situation of Small and Medium sized Enterprises (SMEs); the type and amount of wastes; the nature of the operation; and their domestic legislation. Additionally these tools will be complementary to EMAS, however further advice on the specific requirements of EMAS that go beyond ISO based systems and the OECD CPEs should be sought.

The intention of BIR is to follow up this initiative with further workshops at its biannual Conventions and to gather experience from companies and national associations. These tools will be amended annually, based on feedback received by 1 May each year.

Contents

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2. Getting the most from these Tools

These Tools are for the use of Environmental Management System (EMS) implementers in the recycling industry, for example those persons that lead the Environmental Management System development effort in the company.

These Tools are not intended for use by registrars (or others) for registration purposes, nor are they intended to provide specific interpretations of the ISO 14001 standard.

These Tools use the ISO 14001 standard as its Environmental Management System model. ISO 14001, published in November 1996, and revised in 2004, is the most widely accepted international standard for EMS.

Besides the ISO standard basis for these Tools they are also designed around the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

The OECD Council Recommendation C(2004)100 applies to Recycling industry operations , as well as to other Recovery operations and to Disposal operations, and as it contains environmental requirements for companies it is therefore the reason for integrating the OECD Core Performance Elements into these Tools. Some of the Recommendation's requirements may overlap the ISO requirements, for example Core Performance Element 1 requires a fully implemented and maintained Environmental Management System.

These Tools provide the basic elements necessary to start a new Environmental Management System. If your company does not yet have an Environmental Management System, then these are the Tools to implement ISO 14001 including the OECD requirements at once. For that purpose a full set of procedures and the Environmental Management System Manual are part of these Tools.

These Tools may be used to upgrade from your existing ISO 14001 national or tailor made system. For that reason these are the right tools to update to ISO 14001: 2004 and to enable your company to demonstrate that it is Environmentally Soundly Managed. With the Gap Analysis Tool, you can determine exactly what your company needs so as to include the OECD requirements.

The heart of these Tools is found in Part 8, containing a 12-step approach for the full implementation of the Environmental Management System including the OECD requirements. When these 12 steps are followed step-by-step implementation will take place in the right sequence to be most effective. Each implementation step describes what is needed and what must be done before proceeding to the next step.

For each of the fundamentals of an Environmental Management System, Part 8 describes their importance, how to get started on implementation, and other key suggestions, for example a gap analysis has been added to help users as they progress from one Environmental Management System part to the next. Readers can use these gap analyses to summarize and evaluate their existing management processes, to initiate needed improvements and to help maintain implementation momentum.

The Environmental Management System procedures contained in these Tools represent the necessary set of procedures normally documented as part of an ISO 14001 compliant Environmental Management System. You may choose to include all of these procedures (regardless of whether you eventually will seek certification of your Environmental Management System to ISO 14001), or to add, remove, or

modify procedures so that the documentation fits your company profile and your Environmental Management System.

Also these procedures are designed to be compliant with ISO 14001 and OECD Core Performance Element requirements.

Your Environmental Management System Manual should reference worksheets, templates, or company records, where applicable. The Manual in amongst these Tools makes reference to numbered templates that directly follow the corresponding procedures, as well as to other records maintained elsewhere in the company. If you use additional formats or worksheets, include those as well. Make optimal use from what is available already.

How these Tools are organised

Part 3: ISO 14001 explained	This Part describes the many benefits of an ISO 14001 Environmental Management System and how such a system can help your company to compete and prosper in today's global marketplace.
Part 4: What is Environmentally Sound Management (ESM)?	This Part summarises the OECD requirements in relation to the ISO 14001 requirements, and describes in detail the specific OECD Core Performance Elements (CPEs).
Part 5: What is involved in implementing Environmentally Sound Management?	This Part describes what is involved in implementing the Environmental Management System and fulfilling the OECD requirements.
Part 6: Structure, scope and application	This Part describes the structure, scope and application of this Environmental Management System.
Part 7: Gap analysis template for Environmentally Sound Management	This Part contains the Gap Analysis. After use your company will know where it complies with ISO 14001 and the OECD requirements, and where not. Whilst most useful for new implementations, this Gap Analysis may also help to improve current Environmental Management Systems.
Part 8: Implementation of Environmentally Sound Management	This Part outlines the sequence of events for implementing the fundamentals of an Environmental Management System and explains why the implementation of certain parts is done this way. The process of implementation is ordered in 12 Steps and includes the OECD Core Performance Elements.

Part 9 : System documentation for Environmentally Sound Management	This Part contains a sample Environmental Management System Manual including a sample policy and the full set of required procedures including the OECD Core Performance Elements integrated in the text. The sample procedures are adapted from actual Environmental Management System procedures used by companies.
Part 10: Glossary	This Part contains the glossary of terms used.
Part 11: Managing Directors' Quickstart Ⓐ – Ⓑ – Ⓒ – Ⓓ	This Part provides a very concise lists of the five fundamentals of ISO 14001, the 6 OECD CPE requirements, the 12 Steps to implementation and the 12 procedures to follow for Environmentally Sound Management, and the MD's initial considerations and decisions in order to start the process

3. ISO 14001 explained

After the success of the introduction of the ISO 9000 series of quality standards, the International Standards Organisation has introduced a comprehensive set of standards for environmental management.

This series of standards is designed to cover the whole area of environmental issues for organisations in the global marketplace.

The ISO 14000 series emerged primarily as a result of the Uruguay meeting of the GATT negotiations and the Rio Summit on the Environment, held in 1992. While GATT concentrated on the need to reduce non-tariff barriers to trade, the Rio Summit generated a commitment to protection of the environment across the world. Since then, the environmental field has seen a steady growth of national and regional standards on environmental issues.

After the rapid acceptance of ISO 9000, and the increase in national environmental standards around the world, ISO assessed the need for international environmental management standards. In 1991, it formed the Strategic Advisory Group on the Environment (SAGE), to consider whether such standards could serve to:

• Promote a common approach to environmental management similar to quality management
• Enhance a company's ability to attain and measure improvements in environmental performance
• Facilitate trade and remove the trade barriers.

In 1992, SAGE's recommendations created a new committee, TC (technical committee) 207, for international environmental management standards. The committee, and its sub-committees, was made up of representatives from industry, standardisation organisations, government and environmental organisations from many countries.

The 1996 edition of ISO 14000 standards were designed to cover:

• Environmental management systems
• Environmental auditing
• Environmental performance evaluation (EPE)
• Environmental labelling
• Life-cycle assessment
• Environmental aspects in product standards

The set of international standards brings a world-wide focus to the environment, thus encouraging a cleaner, safer, healthier world for our community. The existence of the standards allows companies to focus on environmental efforts against internationally accepted criteria.

In November 2004 the latest version of ISO 14000 was issued (ISO 14001:2004).

Whilst the two standards of 1996 and 2004 look similar, attention has to be paid to the new requirements. It has been said that there would be no new requirements, but that's not true. There are indeed new requirements that were introduced in order to improve the standard.

Up until recently, many countries and regional groupings were generating their own requirements for environmental issues, and these vary between the groups and in their purposes
A single International accepted standard ensures that there are no conflicts between regional interpretations of good environmental practice.

Many companies gained ISO 9000 registration, primarily to meet growing demands from their customers. ISO 9000 quality system registration has become necessary to do business in many commercial areas. Similarly, the ISO 14000 management system registration will become a requirement for doing business in many regions or industries.

The ISO 14001 standard applies to all types and sizes of company and is designed to encompass diverse geographical, cultural and social conditions. Whilst committing to continual improvement and compliance with applicable legislation and regulations, the ISO 14001 standard does not establish absolute requirements for environmental performance. It follows that many companies, engaged in similar activities, may have widely different environmental management systems and performance, and may all comply with ISO 14001.

It is up to the company to decide the application of the standards. The company has to document the extent of the coverage. However, limiting coverage to a small area may provide competitors with an ideal marketing opportunity.

The new Core Performance Elements for Environmentally Sound Management as published by the OECD are putting additional requirements on companies that go further than ISO 14000:2004. Part 4 explains more what Environmentally Sound Management means and what it requires of companies.

Below is an overview of the different standards in the new ISO 14000:2004 series (see also http://www. iso.org).

ISO 14000: 2004 **Guide to Environmental Management Principles, Systems and Supporting Techniques**

ISO/IEC Guide 66:1999 General requirements for bodies operating assessment and certification/ registration of environmental management systems (EMS)

ISO 14001:2004 **Environmental management systems - Requirements with guidance for use**

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ISO 14001:2004 specifies requirements for an environmental management system to enable an organization to develop and implement a policy and objectives which take into account legal requirements and other requirements to which the organization subscribes, and information about significant environmental aspects. It applies to those environmental aspects that the organization identifies as either those that it can control or those that it can influence. It does not itself state specific environmental performance criteria.

ISO 14001:2004 is applicable to any organization that wishes to establish, implement, maintain and improve an environmental management system, to assure

itself of conformity with its stated environmental policy, and to demonstrate conformity with ISO 14001:2004 by:

a) Making a self-determination and self-declaration, or
b) Seeking confirmation of its conformance by parties having an interest in the organization, such as customers, or
c) Seeking confirmation of its self-declaration by a party external to the organization, or
d) Seeking certification/registration of its environmental management system by an external organization.

All the requirements in ISO 14001:2004 are intended to be incorporated into any environmental management system. The extent of the application will depend on factors such as the environmental policy of the organization, the nature of its activities, products and services and the location where and the conditions in which it functions.

ISO 14004:2004 **Environmental management systems - General guidelines on principles, systems and support techniques**
ISO 14004:2004 provides guidance on the establishment, implementation, maintenance and improvement of an environmental management system and its co-ordination with other management systems. The guidelines in ISO 14004:2004 are applicable to any organization, regardless of its size, type, location or level of maturity. While the guidelines in ISO 14004:2004 are consistent with the ISO 14001:2004 environmental management system model, they are not intended to provide interpretations of the requirements of ISO 14001:2004.

ISO 14015:2001 **Environmental management - Environmental assessment of sites and organizations (EASO)**
This standard provides guidance on how to conduct an environmental assessment on sites, through a systematic process of identifying environmental aspects and environmental issues and determining, if appropriate, their business consequences.

ISO 14031:1999 **Environmental management - Environmental performance evaluation – Guidelines**
This technical report identifies and describes elements and issues concerning environmental declarations and corresponding programmes, including technical considerations, declaration format and communication, and administrative considerations for developing and/or using a type 3 environmental declaration.

ISO 14032 contains examples from real companies to illustrate the use of ISO 14031.

ISO/TR 14032:1999 **Environmental management - Examples of environmental performance evaluation (EPE)**

This technical report identifies and describes elements and issues concerning environmental declarations and corresponding programmes, including technical considerations, declaration format and communication, and administrative considerations for developing and/or using a type 3 environmental declaration.

ISO 14032 contains examples from real companies to illustrate the use of ISO 14031.

ISO 14040:2006

Environmental management - Life cycle assessment - Principles and framework

ISO 14040:2006 describes the principles and framework for life cycle assessment (LCA) including: definition of the goal and scope of the LCA, the life cycle inventory analysis (LCI) phase, the life cycle impact assessment (LCIA) phase, the life cycle interpretation phase, reporting and critical review of the LCA, limitations of the LCA, the relationship between the LCA phases, and conditions for use of value choices and optional elements.

ISO 14040:2006 covers life cycle assessment (LCA) studies and life cycle inventory (LCI) studies. It does not describe the LCA technique in detail, nor does it specify methodologies for the individual phases of the LCA.

ISO 14044:2006

Environmental management - Life cycle assessment – Requirements and Guidelines

ISO 14044:2006 specifies requirements and provides guidelines for life cycle assessment (LCA) including: definition of the goal and scope of the LCA, the life cycle inventory analysis (LCI) phase, the life cycle impact assessment (LCIA) phase, the life cycle interpretation phase, reporting and critical review of the LCA, limitations of the LCA, relationship between the LCA phases, and conditions for use of value choices and optional elements.

ISO 14044:2006 covers life cycle assessment (LCA) studies and life cycle inventory (LCI) studies.

ISO/TR 14047:2003

Environmental management - Life cycle impact assessment Examples of application of ISO 14042

ISO/TR 14047:2003 provides examples to illustrate current practice in carrying out a life cycle impact assessment in accordance with ISO 14042. These are only examples of the total possible «ways» to satisfy the provisions of ISO 14042. They reflect the key elements of the life cycle impact assessment (LCIA) phase of the LCA.

The examples presented in ISO/TR 14047:2003 are not exclusive; other examples exist to illustrate the methodological issues described.

ISO/TS 14048:2002

Environmental management - Life cycle assessment – Data documentation format

This Technical Specification provides the requirements and a structure for a data documentation format, to be used for transparent and unambiguous doc-

umentation and exchange of Life Cycle Assessment (LCA) and Life Cycle Inventory (LCI) data, thus permitting consistent documentation of data, reporting of data collection, data calculation and data quality, by specifying and structuring relevant information.

The data documentation format specifies requirements on division of data documentation into data fields, each with an explanatory description. The description of each data field is further specified by the structure of the data documentation format.

This Technical Specification is applicable to the specification and structuring of questionnaire forms and information systems. However, it can also be applied to other aspects of the management of environmental data.

ISO/TR 14049:2000	**Environmental management - Life cycle assessment - Examples of application of ISO 14041 to goal and scope definition and inventory analysis**

This technical specification provides the requirements and a structure for a data documentation format, to be used for transparent and unambiguous documentation and exchange of life cycle assessment (LCA) and life cycle inventory (LCI) data, thus permitting consistent documentation, reporting of data, data calculation and data quality, by specifying and structuring relevant information.

Technical report ISO 14049 provides examples about practices in carrying out a life cycle inventory analysis as a means of satisfying certain provisions of ISO 14041.

ISO 14050:2002   **Environmental management – Vocabulary**

This International Standard contains definitions of fundamental concepts related to environmental management, published in the ISO 14000 family of International Standards.

ISO/TR 14062:2002   **Environmental management - Integrating environmental aspects into product design and development**

ISO/TR 14062:2002 describes concepts and current practices relating to the integration of environmental aspects into product design and development. ISO/TR 14062:2002 is applicable to the development of sector-specific documents. It is not applicable as a specification for certification and registration purposes.

ISO 19011:2002   **Guidelines for quality and/or environmental management systems auditing**

ISO 19011:2002 provides guidance on the principles of auditing, managing audit programmes, conducting quality management system audits and environmental management system audits, as well as guidance on the competence of quality and environmental management system auditors. It is applicable to all organizations needing to conduct internal or external audits of quality and/or environmental management systems or to manage an audit programme. The

application of ISO 19011 to other types of audits is possible in principle provided that special consideration is paid to identifying the competence needed by the audit team members in such cases.

Environmental Management System model

ISO 14001 specifies the requirements of an environmental management system. It has been designed in such a way that it is applicable to all types and sizes of company and fits diverse geographical, cultural and social conditions. This is shown in the Environmental Management System model below illustrating that the system includes an environmental policy, adequate planning, sound implementation and operation, monitored by checking and followed by corrective actions and management reviews in a loop of continual improvement.
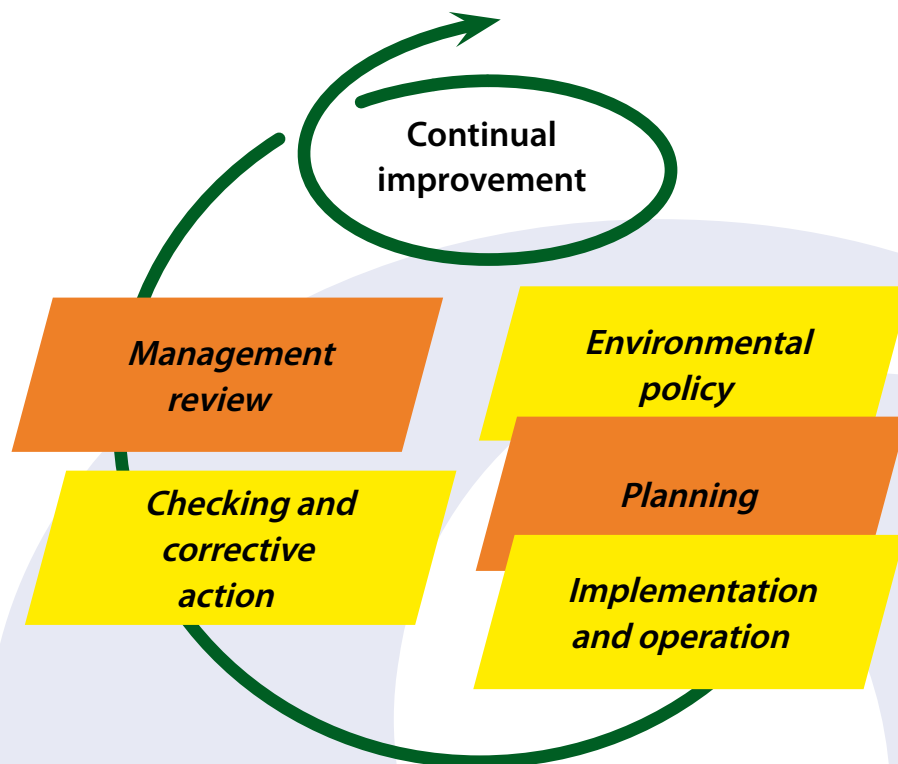
Environmental Management System model for ISO 14001:2004.

Environmental Policy

ISO 14001 requires an Environmental Policy to be in existence within the company, fully supported by senior management, and outlining the policies of the company, not only to the staff but also to the public.

The policy needs to clarify compliance with Environmental Legislation that may affect the company and to stress a commitment to continuous improvement. Emphasis has been placed on policy as this provides the direction for the remainder of the Management System.
Those companies who have witnessed ISO 9000 Assessments will know that the policy is frequently discussed during the assessment; many staff are asked if they understand or are aware of the policy.

The Environmental Policy provides the initial foundation and direction for the Management System and will be more stringently reviewed than a similar ISO 9000 policy. The Policy statement must be publicised in non-technical language so that the majority of readers can understand it and it should relate to the sites within the company encompassed by the Management System; it should provide an overview of the company's activities on the site, with a description of those activities and a clear picture of the company's operations.

Planning

The preparatory review and definition of the company's environmental effects is not part of an ISO 14001 Assessment; however examination of this data will provide an external audit with a wealth of information on the methods adopted by the company. The preparatory review itself should be comprehensive in consideration of input processes and output at the site. This review should be designed to identify all relevant environmental aspects that may arise from existence on the site. These may relate to current operations, they may relate to future, perhaps even unplanned future activities, and they will certainly relate to the activities performed on site in the past.

The initial or preparatory review will also include a wide-ranging consideration of the legislation, which may affect the site, whether it is currently being complied with, and perhaps even whether copies of the legislation are available.

Many of the environmental assessments already undertaken have highlighted that companies are often unaware of all of the legislation that affects them and being unaware, are often not meeting the requirements of that legislation.

The company will declare its primary environmental objectives, i.e., those that can have most environmental impact. In order to gain most benefit these will become the primary areas of consideration within the improvement process, and the company's environmental programme.

The programme will be the plan to achieve specific goals or targets along the route to a specific goal and describe the means to reach those objectives such that they are real and achievable.

Implementation and Operation - Environmental Management System

The Environmental Management System provides further detail on the environmental programme. The EMS establishes procedures, work instructions and controls to ensure that implementation of the policy and achievement of the targets can become a reality. Communication is a vital factor, enabling people in the company to be aware of their responsibilities, aware of the objectives of the scheme, and able to contribute to its success.

Checking and Corrective Action

The Environmental Management System requires a planned comprehensive periodic audit of the Environmental Management System to ensure that it is effective in operation, is meeting specified goals, and that the system continues to perform in accordance with relevant regulations and standards. The

audits are designed to provide additional information in order to exercise effective management of the system, providing information on practices that differ from the current procedures or offer an opportunity for improvement.

Management Review

In addition to the audit, there is a requirement for a Management Review of the system to ensure that it is suitable (for the company and the objectives) and effective in operation. The management review is the ideal forum to make decisions on how to improve for the future.

> In the description of the standard below, text quotes from the original standard ISO 14001:2004 are marked in orange.

▶ **1. SCOPE**
   The ISO 14001:2004 standard sets requirements for an Environmental Management System. This EMS is applicable to companies that want to:

Implement, maintain and improve an EMS
Assure itself of its conformance with the Environmental Policy
Demonstrate such conformance to others, government, provincial or local authorities by:
Making a self-determination and self-declaration or
Seeking confirmation of its conformance by parties having interest in the organisation, such as customers
or
Seeking information of its self-declaration by a party external to the organisation or
Seeking certification/registration of its EMS by an external organisation

All the requirements that are mentioned in ISO 14001 are to be included in the EMS

▶ **2. NORMATIVE REFERENCE**

Not applicable.

▶ **3. TERMS AND DEFINITIONS**

3.1 Auditor
Person with the competence to conduct an audit.

3.2 Continual improvement
Recurring process of enhancing the EMS in order to achieve improvements in overall environmental performance consistent with the organisation's environmental policy.

3.3 Corrective action

Action to eliminate the cause of a detected nonconformity.

3.4 Document

Information on its supporting medium.

3.5 Environment

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, communities and their interrelation.

3.6 Environmental aspect

Element of the organisation's activities, products and services that can interact with the environment.

3.7 Environmental impact

Any changes to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activity, product or service.

3.8 Environmental Management System (EMS)

Part of an organisation's management system used to develop and implement its environmental policy and manage its environmental aspects.

3.9 Environmental objective

Overall environmental goal consistent with the environmental policy that an organisation sets out to achieve.

3.10 Environmental performance

Measurable results of an organisation's management of its environmental aspects.

3.11 Environmental policy

Overall intentions and direction of an organisation related to its environmental performance as formally expressed by top management.

3.12 Environmental target

Detailed performance requirement applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.

3.13 Interested party

Person or group concerned with or affected by the environmental performance of the organisation.

3.14 Internal audit

Systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the EMS audit criteria set by the organisation are fulfilled.

3.15 Nonconformity
Non-fulfilment of a requirement.

3.16 Organisation
Company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public, private, that has its own functions and administration.

[the generic term Organisation is replaced by Company in most of these Tools, except where quoting text from the Standard]

3.17 Preventative action
Action to eliminate the cause of a potential nonconformity.

3.18 Prevention of pollution
Use of processes, practices, techniques, materials, products, services or energy to avoid, reduce or control the creation, emission or discharge of any type of pollutant or waste, in order to reduce adverse environmental impacts.

3.19 Procedure
Specified ways to carry out an activity or process.

▶ 4. ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) REQUIREMENTS

4.1 General requirements
The organisation shall establish, document and maintain and continually improve an EMS in accordance with the requirements of ISO 14001:2004 and determine how it will fulfil these requirements.

4.2 Environmental policy
The establishment of an environmental policy by top management is the first requirement of ISO 14001. The policy directs goals, responsibilities and the establishment of performance against which the management must be judged. Top management is responsible for the initiation of the policy and for providing leadership.

The policy should:
- Reflect an ethical basis for the company's actions
- Account for regulatory requirements
- Show commitment to continual improvement
- Be in line with other policies used within the company (quality)
- Be clear and concise and known by all levels within the company
- Be publicly available
- Strive towards sustainable development
- Set for publication of environmental objectives
- Satisfy the requirements of concerned third parties such as Insurance companies, banks, and shareholders
- Be updated when needed

All significant products and services should be considered. Compliance with legal requirements, pollution prevention aims and the need for continual improvement should be included in the Policy determination.

The policy must be in writing and must be effectively communicated to all employees.

Example of a Company's Environmental Policy:

Our Company's Environment Policy is to:

Firstly enable the success of the company's activities while maintaining environmental stewardship of assets, controls over environmental responsibilities, and compliance with applicable laws.

Secondly, comply with all applicable laws, regulations, company environmental requirements, and environmental agreements with other organizations. Environmental requirements may include but are not limited to: pollution prevention and control of emissions to air and land and water; hazardous waste and/or non-hazardous waste management; remediation of contaminated sites; occupational and environmental health and safety; energy conservation; personnel training; emergency planning; monitoring recording and reporting programmes; and protection of cultural and natural resources.

Thirdly, in program and project management, consider environmental factors throughout the life cycle of a program including its: planning; development; execution; and disposition. Examples of environmental factors to consider include: permits or exemptions or authorizations required; the overall environmental preferability of selected materials and processes with respect to use of hazardous materials and any waste generation; and any environmental impacts of any program or project.

Fourthly, seek partnerships with official and other organisations as appropriate, to leverage available resources and comply with environmental requirements, prevent pollution, reduce waste generation, and manage natural resources in the most efficient and effective manner possible.

Lastly, promote continual improvement in carrying out the company's environmental management responsibilities.

Our company will demonstrate its Environmentally Sound Management through verified and certified compliance with appropriate Core Performance Elements from the OECD Recommendation C(2004)100 that includes, as its Core Performance Element 1, having an applicable Environmental Management System in place.

4.3 Planning

4.3.1 Environmental aspects

Environmental aspects are those elements of a company's activity, products or services, which may have potentially beneficial or harmful effects on the environment. These may include discharges and emissions, raw material and energy use, waste recycling etc.

An environmental impact is the change that takes place after the occurrence of a given aspect.

Example compilation of "Environmental aspects"

Requirements	Technical / Operational aspects	Environmental impact on / Environmental media affected
Legislation	Temporary Storage Pollution emissions Closure	Water, Air, Land Air, Land, Water Buildings and Land
Permits	Transfer Operating	Waste Water, Air, Land
Insurance	Transport Operating	Air, Land Air, Land, Water
Complaints	Organics / Residues Process	Air (Smell) Noise and vibration
Company policy Guidelines	Product	Health and Safety
Customers	Process Product Product	Air, Land, Water Quality Contamination

Consider all the ecological effects, human health effects, catastrophic effects, resources depletion, and probability of occurrence.

4.3.2 Legal and other requirements

A procedure to identify legal requirements of the company should be established and maintained. This includes all laws and self-imposed requirements. The requirements can be partially established by reviewing the completed aspects and impacts.

The purpose of identifying these items is to ensure that all operations take into account not only the law, but also the self imposed and non-legal practices. Many legal and contractual violations are a direct result of the lack of awareness generated by the lack of knowledge.

4.3.3 Objectives and targets

The organisation shall establish and maintain documented environmental objectives and targets, at each relevant function and level within the organisation.

These objectives and targets must be consistent with and contain the commitments required in the policy.
The business plan must be in line with the objectives and targets.

Operational staff best set objectives and targets, and since they will be ultimately responsible for performance, they should be included in the decision making process when the objectives and targets are developed.

4.4 Implementation and operation

4.4.1 Resources, roles, responsibility and authority
Management shall ensure the availability of resources essential to establish, implement, maintain and improve the EMS. Resources include human resources and specialised skills, organisational infrastructure, technology and financial resources.

The responsibilities for the environmental management must be defined and its roles must be communicated to everybody involved.

The standard is clear about the appointment and authority of the management representative. This is seen as top management's commitment.

Documents required are:
- EMS organisational structure
- Company organisational chart
- of communication to all employees about company and EMS structure
- Defined EMS position responsibilities

Accountability and Responsibility

Environmental responsibilities in an SME	Person/Function responsible
Establish overall direction	Managing Director
Develop environmental policy	Environmental Manager
Develop environmental objectives, targets and programmes	Relevant Managers
Monitor overall EMS performance	Environmental Manager
Assure regulatory compliance	Operating Manager
Ensure EMS compliance	All managers
Ensure continual improvement	All managers
Identify customer expectations	Sales and Marketing staff
Identify suppliers' expectations	Purchasing staff, Buyers
Develop and maintain accounting procedures	Finance Manager, Controller
Comply with defined procedures	All staff

4.4.2 Competence, training and awareness
The company shall establish and maintain a programme for achieving its objectives and targets. It shall include:
- Designation of responsibility for achieving objectives and targets at each relevant function and level of the company.
- The means and time frame by which they are to be achieved.

To maintain a pro-active policy with regards to this subject, it is important to utilise employee input wherever possible. The company should communicate the expectations of the Environmental Management System (EMS) and the Environmental Management Policy (EMP) along with the responsibilities to those individuals who need to know. The Environmental Management Policy (EMP) should be based on current programmes and management structures wherever possible. By co-ordinating the EMP with other management programmes, such as QMS, cost reductions are possible. It is important to continually re-evaluate the action plans when changes occur in procedures or facilities.

The basic intent of training is to explain the importance of the Environmental Management System to the staff, and to explain their responsibilities for Environmental Management System operations. In order for responsibilities to be effectively understood, adequate training is essential. A training system should also include training for executives to ensure that they understand the Environmental Management System, know their responsibilities and have the knowledge to carry out these responsibilities.

Type of training	Audience	Purpose
Raising awareness of the strategic importance of environmental management	Senior management	To gain commitment and alignment of the company's environmental policy.
Raising general environmental awareness	All employees	To gain commitment to the environmental policy, objectives and targets and to instil a sense of individual responsibility
Skills enhancement	Employees with environmental responsibilities	Improve performance in specific areas, such as operations, R&D, engineering etc.
Compliance	Employees whose actions can affect compliance	Ensure regulatory and internal requirements for training are met

4.4.3 Communication

With regards to its environmental aspects and EMS, the organisation shall establish and maintain procedures for:
* *Internal communication between the various levels and functions of the organisation*
* *Receiving, documenting and responding to relevant communication from external interested parties*

Interested parties outside the Company may comprise neighbours, community groups, local government, municipalities, regulatory agencies and emergency responders.
Procedures that should be developed if applicable are:
* Procedure for internal communication on environmental matters
* Procedure for external communication on environmental matters

The company should keep records of:
- Received internal/external environmental communication
- Responses to internal/external communication on environmental matters
- Proof of policy communication
- Suggestions related to environmental issues
- EMS document distribution sign off sheets
- Emergency response communication records
- Internal/external audit reports

4.4.4 Documentation
The company shall establish and maintain programmes for achieving its objectives and targets. It shall include:
- The environmental policy, objectives and targets
- Description of the scope of the EMS
- Description of the main elements of the EMS and their interaction, and reference to related documents
- Documents, including records, required by ISO 14000
- Documents, including records, determined by the company to be necessary to ensure the effective planning, operation and control of processes that relate to its significant environmental aspects.

Up to now, these tools have focused on laying the foundations the EMS will be developed on, and identifying the targets and objectives of the EMS. To ensure that these targets and objectives are accomplished, an Environmental Management Programme (EMP) is created.
The EMP should be designed into the existing company structure such as financial management, purchasing, operational etc. This is essential if environmental management is to become an integral portion of the overall business.

4.4.5 Control of documents
The company shall establish and maintain information in paper and electronic form to:
- describe the basic elements of the management system and their interaction
- provide direction to related documentation

Documenting the EMS can be as simple or as complex as the company wants. EMS documents can and should be integrated with other management documents wherever possible.

Cross-references with health and safety manuals and quality manuals are examples of this.
Existing procedure manuals may have environmentally related information in them.

Operational processes and procedures should be defined, documented and updated, especially those that establish operational control over significant environmental aspects.

Elements of document control are:
- Issue and revision date
- Effective date

- Approval
- Revision number
- Document number
- Copy number
- Cross-references

To ensure that everybody involved is working with the current version of any document, it is advised to use the "on-screen" technique if the Company's computers are networked. In this way throughout all company work areas, the latest version of the procedure or work instruction appears on the screen of the workstation.
- Ensure authority rights to people who are allowed to make changes in procedures, work instructions and forms.
- Ensure that everybody involved is able to handle Personal Computers and workstations.

4.4.6 Operational control

The organisation shall identify those operations and activities associated with the identified significant environmental aspects in line with its policy, objectives and targets in order to ensure that they are carried out under specified conditions.

It is important to develop procedures for controlling key activities and operations that are associated with significant aspects.
- Ensure that employees are trained in these procedures
- Ensure that these procedures cover all normal and abnormal operating conditions, including emergencies
- Operational control can be broken down into two plans, a technical control plan and a management control plan. These plans describe technical and managerial controls identified during the gap analysis (Part 7)
- This may include budgets for internal capabilities, external support requirements and actual expenditures for capital equipment

Employees who actually work with procedures should develop new instructions, and modify existing ones. Preparation of documentation to establish EMS operation control should be delegated to departmental work groups under the direction of the department manager.

The department should review environmental requirements and effects within their area of operation as defined in the aspects, objectives and targets (See sections; 4.3.1 and 4.3.3).

This activity is usually carried out by the project team.

Procedures (for several persons)

A procedure is a pre-described series of actions involving several people. These actions are to be executed in a predetermined sequence, and within the sequence, any points of choice are clearly indicated. A procedure always deals with the following matters:
- What needs to be done
- Who will have to do it
- When will it have to be done

Note that the standard requires only a limited number of procedures, and that each additional procedure may complicate the system for the recycling company, add costs and unnecessarily delay implementation.

Instructions (for individuals)

An instruction (also called work instructions or GMP) can be described as a pre-described series of actions to be executed by one single person in a determined sequence. Any points of choice are clearly indicated.

Operational control

Set of ISO requirements and core performance elements

Monitoring → **Verification** → **Corrective actions**

Process

Ingoing stream **Outgoing stream**
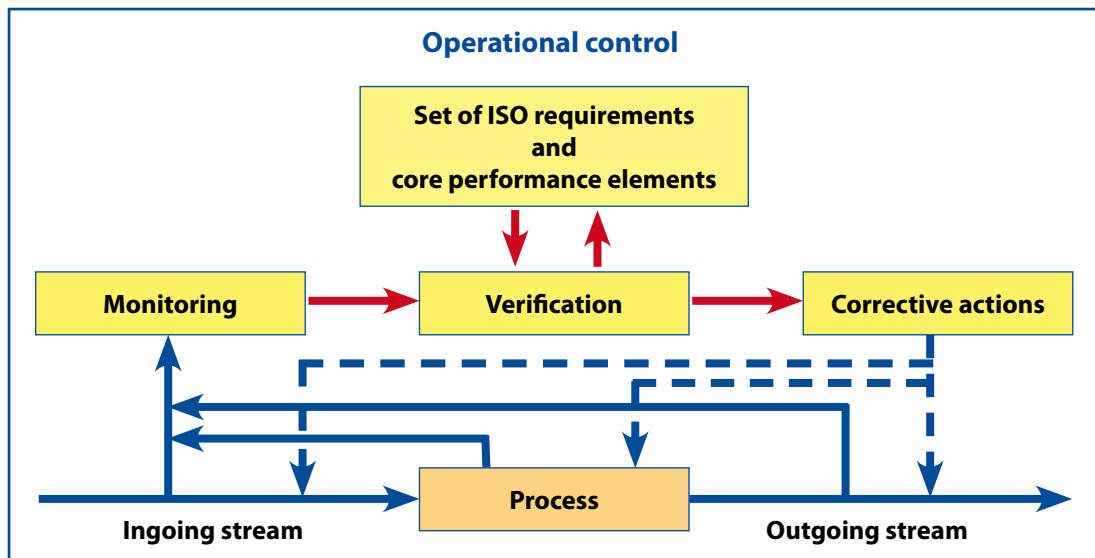
The operational control model

4.4.7 Emergency preparedness and response

The organisation shall establish and maintain procedures to identify potential emergency situations and potential accidents that can have an impact on the environment and how it will respond to them. It shall respond to actual emergencies and accidents and prevent or mitigate associated adverse environmental aspects.

The organisation shall periodically review and, where necessary, revise its emergency preparedness and response procedures, in particular, after the occurrence of accidents or emergency situations.

The company must also test periodically the implemented procedures.
It is recommended to:

- review all key procedures for emergency preparedness
- develop procedures for managing these incidents
- train all personnel adequately and check if all emergency equipment is where it should be
- develop a process to review the emergency system after an incident

Planning for emergencies should include:

- An emergency assessment process
- Preventative measures
- Company responsibilities
- Listing of key personnel

- Defining emergency services and their capabilities
- Communication plans
- Actions to take in the event of emergencies
- Hazardous material information, training, planning and practising in the event of a release

In developing the procedure, the recycling company should take the following items into consideration.

- Flammable solids, liquids and gasses, storage tanks, compressed gasses and measures to prevent spillages or accidental releases. Also measures to be taken in case of such an event.
- The most likely type and scale of an emergency situation or accident.
- The most appropriate method for responding to an accident or emergency situation.
- Internal and external communication.
- The action required to minimise environmental damage.
- Mitigating and responsive actions to be taken for the different type of accidents.
- The need for post-accident investigation to allow corrective and preventative actions.
- Periodic testing of the emergency response procedure.
- Training of the emergency response personnel.
- A list of key personnel and aid agencies including contact details (e.g., fire department, spillage clean-up, aid organisation, rescue organisations, municipalities for evacuation or warning)
- Evacuation routes and safe assembly points.
- The potential for an emergency situation at a nearby facility affecting the recycling site.
- The possibility of mutual assistance from neighbouring companies.

Useful information can be obtained from material safety data sheets, plant drawings, process flow diagrams, piping and instrumentation diagrams, design codes and standards and specifications on safety systems.

• **Illustrative list of some possible causes of an emergency at recycling plants (not applicable to all operations)**
• Flooding (Contamination of ground water)
• Fire of stockpiled recyclables
• Fire of process materials (liquid fuels, gasses)
• Fire in filter equipment (e.g. Bag filter fires)
• Spill of hazardous substances (e.g. oil)
• Contamination of scrap processing plant or melting plant by undetected radioactive material
• Explosions (e.g. during melting of scrap from war-zones, with undetected explosives)
• Molten metal incidents (e.g. in furnace explosions due to containers with fluids)
• Road traffic accidents
• Undetected build up of poisonous fumes in closed areas of operations

4.5 Checking

4.5.1Monitoring and measurement

The organisation shall establish and maintain documented procedures to monitor and measure, on a regular basis, the key characteristics of its operations and activities that can have significant impact on the environment. This shall include the recording of information to track performance, relevant operational controls and conformance with the organisation's environmental objectives and targets.

It is essential to identify the key process characteristics and develop a method to monitor these characteristics.

A process must be developed to review the compliance with the regulations.

It must be determined how to measure or monitor the performance relative to the objectives and targets.

When performing measuring and monitoring it is essential to:
- Identify and document the measurements that will be performed, and specify the tolerance. Use the listing under 4.4.7 to generate ideas with a brainstorming group
- Identify the time, place and persons performing the measurements
- Maintain quality control procedures for verification purposes
- Ensure corrective actions and countermeasures are in place if the measurement is found to be in excess of allowable parameters
- Procedures for calibration and routine maintenance of equipment utilised should be documented

Ensure that the difference between environmental performance evaluations (EPE) and audits are clear
- Audits are periodic and independent - a sampling of data to verify conformance.
- Environmental Performance Evaluations are continual and frequent - an operational responsibility to assess process performance.

4.5.2 Evaluation of compliance

Consistent with its commitment to compliance, the organisation shall establish, implement and maintain a procedure for periodically evaluating compliance with applicable legal requirements.

The company shall keep records of the results of these periodic evaluations.

Basically the company should be able to demonstrate that it has evaluated its compliance with its identified legal requirements, including applicable permits or licences.

4.5.3 Nonconformity, corrective action and preventative action

The company shall establish, implement and maintain a procedure for dealing with actual and potential nonconformities and for taking corrective and preventative action. The procedures shall define requirements for:
- Identifying and correcting nonconformities and taking actions to mitigate their environmental impacts.
- Investigating nonconformities, determining their cause and taking actions in order to avoid their recurrence.

- Evaluating the need for action to prevent nonconformities and implementing appropriate action designed to avoid their occurrence.
- Recording the results of corrective actions and preventative actions taken.
- Reviewing the effectiveness of corrective actions and preventative actions taken.

4.5.4 Control of records

The organisation shall establish and maintain records as necessary to demonstrate conformity to the requirements of its EMS [e.g. ISO 14001 and the results achieved].

The organisation shall establish, implement and maintain a procedure for the identification, storage, protection, retrieval, retention and disposal of records.

Records shall be and remain legible, identifiable and traceable.

It should be ensured that all the records to be maintained are identified.

A company retention policy must be defined for these documents and sufficient storage provided. A document retrieval system should be put in place for documents in either paper or electronic form. For records in electronic form a good Management Information System should be implemented and followed.

Documents that are to be retained in the EMS are:
• Complaints reports and records, from customer and other interested parties, and corrective/ preventative action taken
• Records of tests for emergency preparedness, drills and training exercises
• Audit results, internal, external, third parties
• Periodic management review results
• Process monitoring records
• Environmental aspects determination documentation
• Training records from all levels
• Inspection, maintenance and calibration records (also defined in ISO 9001)
• Incident records with corrective/preventative action taken
• Records of applicable legal requirements and the revisions
• External communications decision
• Pertinent contractor and supplier records
• Records of significant environmental aspects
• Records of environmental meetings, planning, minutes etc.
• Environmental performance information
• Legal compliance records
• Communications with interested parties, local communities

4.5.5 Internal audit
The organisation shall ensure that internal audits of the EMS are conducted at planned intervals to:
- *Conforms to planned arrangements for environmental management including the requirements of ISO 14001 and:*
- *Has been properly implemented and maintained and:*
- *Provide information on the results of audits to management.*

Whether or not internal or third party auditors are used, they should possess the qualifications outlined in ISO 14012, in that they need expertise in:
- environmental science and technology
- the technical and environmental aspects of facilities operation
- environmental law and regulations
- environmental management systems
- EMS auditing techniques

It is essential to develop procedures that clarify "audit scope", "audit frequency", "auditor qualifications", "reporting requirements" and "follow-up". Two major objectives should be expected from an audit:
- The determination of compliance with the EMS as outlined by the objectives and targets, aspects, EMP, the environmental manual, procedures and work instructions, and to check for effective implementation of them all.
- The determination of whether the system is effective in achieving the policy objectives.

[Note: Aside from the explanation above, and that internal audits are recommended in preparation for certification, for Environmentally Sound Management (ESM) the OECD CPE-1 requires that a fully developed EMS should be certified by a recognised party, and that large licensed /authorised /permitted recovery and recycling facilities should be subject to periodic inspections and/or audits, normally on an annual basis, by a recognised independent auditor; whilst Verification and Certification for SMEs may be carried out every three years, otherwise annually. SMEs should ascertain beforehand what other positive incentives and/or relief measures are provided nationally with respect to Verification and Certification such as reduced permit fees, reduced registration fees or other financial assistance.]

4.6 Management review
Top management shall review the organisation's environmental management system at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.
Reviews shall include assessing opportunities for the improvement and the need for changes to the EMS, including the environmental policy and environmental objectives and targets.
Records of the management reviews shall be retained.

Management review is an essential portion of the continual improvement of the company's EMS. The improvement process does not end with the establishment of an initial policy, realisation of initial objectives, or the certification of the EMS to a standard. Management review is the essential element for systems improvement, along with preventative and corrective action.

The Management Representative should plan for conducting the required management review.
The agenda should include review of instances of non-conformance, corrective actions, continual

improvement associated with the EMS, results of compliance and EMS audits, complaints results of any pollution prevention programme, waste minimisation programmes, and a summation of the measurement and monitoring results.

The review process should:
- Assess whether company personnel have complied with policy and procedures using audit reports.
- Review targets, objectives and environmental performance indicators to establish their suitability in light of changing environmental impact and concerns.
- Determine if capital resources (transportation, sorting equipment, balers, separators, detectors, crushers, shredders etc,) are (still) adequate for supporting the EMS requirements of the company.
- Review regulatory compliance and whether EMS requirements have been achieved.
- Determine if the operational controls, procedures, corrective actions, preventative measures and continual improvement efforts have resulted in enhanced environmental performance.
- Determine if energy efficiency, accounting practices and information management systems are adequate.
- Determine areas of improvement in company structure, staff expertise, practices, administrative and operational procedures, training, work instructions, process improvements, pollution prevention programmes, energy utilisation and accounting practices
- Review any emergencies that have taken place in the assessed time period, the preventative and corrective action taken, and the communication to the employees, to interested third parties and municipalities.

During the management review answers to the following questions should be sought:
- Did we achieve our objectives and targets?
- Should we modify our targets?
- Is our environmental policy still relevant to what we do?
- Are roles and responsibilities clear and do they make sense?
- Are we applying resources appropriately?
- Are the procedures clear and adequate?
- How are we doing compared to other recycling operations?
- Are we monitoring our EMS and what do the results of the audit tell us?
- What effects have changes in equipment, materials or products had on our EMS and its effectiveness?
- Do changes in laws or regulations require us to change some of our approaches?
- What owner / stockholder concerns have been raised since our last review?
- Is there a better way? Is this the best available technique (BAT) or practice?
- What else can we do to improve in and around our operation?

In the description of the OECD Recommendation below, text quotes from the original 2004 Recommendation are marked in green.

In June 2004 the Organisation for Economic Co-operation and Development (OECD) adopted a Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste. That Recommendation includes a set of six criteria that companies should implement in their Environmental Management System. These six criteria are called Core Performance Elements (CPEs)

The "working definition" of Environmentally Sound Management
The working definition of Environmentally Sound Management used at the beginning of the work on Environmentally Sound Management was of a

"Scheme for ensuring that wastes and used and scrap materials are managed in a manner that will:
- save natural resources,
- and protect human health and the environment against adverse effects that may result from such waste and materials"

The OECD Recommendation is not binding for its member countries but by agreeing the Recommendation it is expected that all member countries will work towards applying the six Core Performance Elements to Recycling, Recovery and Disposal facilities, especially to those facilities that trade internationally in wastes as importers, or less commonly as exporters.

The scope of Environmentally Sound Management
Environmentally Sound Management applies to all kinds of waste, whether hazardous or non-hazardous. Environmentally Sound Management covers the following activities: disposal, storage (temporary storage only) and the recovery of wastes and used and scrap materials, including subsequent disposal of residues from recovery operations, or in other words, all activities in relation to waste and used and scrap materials which are likely to harm the environment and human health if not properly managed.

This means in practice that the OECD recommendations on Environmentally Sound Management affect a landfill site just as well as a municipal waste incinerator and just as well as a recycling plant and waste collectors.

Waste transportation and refurbishment operations are not considered a recovery operation and are therefore not concerned by this OECD recommendation.

Whilst the OECD ESM Recommendation applies to the management of wastes that are generated, exported or imported within the OECD area only, it is the BIR view as stated in the preface that Competent Authorities in Countries with high protection of human health and the environment may be obliged to ensure that wastes exported from their territories are recycled in facilities that are operated under Environmentally Sound Management.

Issues for Small and Medium-sized Enterprises

All companies performing Recovery and Disposal operations should be concerned by the OECD recommendation, and because activities, especially recycling, are performed by small and medium-sized enterprises (SMEs) it is necessary to ensure that all the requirements in the recommendation are applicable and achievable by SMEs. The OECD recognised on implementing its ESM provisions that "… the size of the enterprise, especially the situation of SMEs, the type and amount of waste, the nature of the operation and domestic legislation" should be taken into account.

These small companies are often faced with both human and financial constraints, which makes it difficult to comply with the requirements. This is exactly the reason why the BIR has developed these Tools.

These Tools are designed in such a way that they incorporate the OECD's six Core Performance Elements within the ISO 14000 Environmental Management System (EMS). It is done that way so that, with minimum manpower and funds, the EMS for Environmental Sound Management can be implemented following the steps provided in these texts.

The 6 OECD Core Performance Elements

The OECD ESM Recommendation identified six Core Performance Elements (CPEs) that are considered as the common requirements for ensuring that wastes are managed in an environmentally sound manner. These 6 CPEs are measures to be taken by companies, whilst taking into account in particular the size of the enterprise, especially the situation of SMEs, the type and amount of waste, the nature of the operation and domestic legislation.

▶ **CPE-1**
The facility should have an applicable Environmental Management System (EMS) in place.

As an underlying principle of ESM, waste management facilities should have an applicable environmental management system (EMS) in place.

A fully developed EMS should be certified by a recognised party and should include:
- *Measurable objectives for continual improvements in environmental performance, including periodic review of the continuing relevance of these objectives;*
- *Regular monitoring and re-examination of progress toward environmental, health and safety objectives;*
- *Collection and evaluation of adequate and timely environmental, health and safety information regarding facility activities;*
- *Provisions included in CPEs 2-6;*
- *Applicable ESM technical guidance.*

Licensed/authorised/permitted waste management facilities should be subject to periodic inspections and/or audits, normally on an annual basis, by a recognised independent auditor.

The auditor shall:
- *verify the conformance of the facility with CPEs 2 to 6, relevant environmental regulations, and, if*

applicable, current EMS systems, such as the ISO 14 001 Environmental Management or the European Community Eco-Management and Audit Scheme (EMAS), or any other equivalent national or sub-national system;

- *assess the performance of the facility regarding environmental, health and safety aspects against measurable objectives.*

Concerning SMEs, the procedures for achieving certification/registration and reporting should be simplified in comparison with large facilities. Because regular audits may create a burden and impose excessive costs on SMEs, their audits should be less complicated and could be carried out less frequently (normally every three years) than those of large facilities, while being consistent with the need to maintain an ESM of waste. Also the environment, health and safety report could be made publicly available every three years.

In addition, there are domestic EMS systems which are specifically tailored to address the needs of SMEs. Whatever EMS system will be selected, it is recommended that the government or large companies have a programme in place to provide support for SMEs in terms of information and know-how sharing.

▶ **CPE-2**

The facility should take sufficient measures to safeguard Occupational and Environmental Health and Safety.

Workers of facilities should not be exposed to unacceptable occupational health and accident risks, related to the content of the materials they are handling, emissions from those materials and the equipment being used. The waste may include hazardous chemicals or toxic metals; they may emit toxic gases or release harmful dust. Workers may have to handle heavy loads, be exposed to vibration and noise of machinery. Also, the risk of fire, explosion, etc. may exist in some cases.

Consequently, adequate measures should be taken to avoid unacceptable occupational health and safety risks.

People living and working in the vicinity of a waste management facility should also not be exposed to unacceptable environmental health and accident risks. These risks relate mainly to the emissions, including noise, from the process and transport to and from the facility. Therefore, adequate measures should also be taken to minimise these impacts to human health. Adequate measures may include national as well as international regulations, agreements, principles and standards, whether mandatory or voluntary.

▶ **CPE-3**

The facility should have an adequate Monitoring, Recording and Reporting Programme.

The facility should have a monitoring and recording programme which covers:
- *relevant legal requirements, including key process parameters;*
- *compliance with applicable safety requirements;*
- *effluents and emissions; and*
- *incoming, stored and outgoing waste, in particular hazardous waste.*

All relevant environmental records should be maintained and made available to competent authorities

according to national legislation and/or local authorisation/license/permit requirements. Waste management facilities should maintain records on the generation, collection, recovery or disposal of waste, its types and amounts which are to be made available to the competent authorities upon request.

On-site recovery or disposal of waste generated by the process concerned must be carried out in compliance with applicable laws and regulations and should be recorded appropriately. In case of off-site recovery or disposal, outgoing waste should be recorded appropriately and handed over only to environmentally sound recovery and/or disposal operations.

Upon request, and taking into account business confidentiality and the protection of intellectual property rights, reliable information on the activities of the facility that may impact the environment or the health and safety of personnel should be made available to the public in a reliable and timely manner.

CPE-4
The facility should have an appropriate and adequate Training Programme for the personnel.

The facility should have training in place for proper identification and handling of any hazardous components in incoming waste. Personnel involved in the management of waste and materials, in particular hazardous waste and materials, should be capable and adequately trained to be able to properly handle the materials, equipment and processes, eliminate risk situations, control releases and carry out safety and emergency procedures.

The facility should define and document the responsibility, authority and interrelations of key personnel who manage, perform and monitor the activities which may have adverse effects on the environment.

Adequate operative training programme for the personnel should be in place and properly documented.

▶ **CPE-5**
The facility should have an adequate Emergency Plan.

The facility should have a regularly updated plan for monitoring, reporting and responding to accidental or otherwise exceptional pollutant releases, including emergencies such as accidents, fires, explosion, abnormal operating conditions etc. The emergency plan should be based on the evaluation of existing and potential risks. An emergency co-ordinator should be designated to handle hazardous wastes.

Large facilities would need a complete contingency plan. The plan should cover both short-term and long-term remedial activities. SMEs whose operation presents little or no risk would need a significantly more limited emergency plan.

Any emergency plan should be periodically reviewed by the relevant authority and/or external auditor. Particularly, in case of SMEs the reviewing body could be the local fire fighting agency or corresponding municipal authority.

This plan should be regularly tested and revised as appropriate, in particular after the occurrence of accidents or emergency situations.

▶ **CPE-6**

The facility should have an adequate plan for closure and after-care.

Generally, the facility should have an adequate plan for closure and after-care. The need for closure plans and financial guarantees is determined by applicable laws and regulations, taking into consideration the level of risk. Closure plans should be updated periodically and financial guarantees should ensure that the necessary measures are undertaken upon definite cessation of activities to prevent any environmental damage and return the site of operation to a satisfactory state, as required by applicable laws and regulations.

[BIR Note – an after-care plan is not necessary for every recycling company]

All six OECD Core Performance Elements are taken into account in the writing of these Tools. The philosophy, the procedures and the structure are all designed in such a way that the base ISO Environmental Management System elements are either combined with the OECD Core Performance Elements, or extended, or are made completely new in order to integrate the CPEs.

By using these Tools to implement an EMS according to ISO 14000 it will also include compliance to the OECD requirements.

Proposed elements of an Annual EHS Report:

■ Period covered (Annual or Three year period for SME)

■ List of plant(s) or site(s) certified to ISO 14001 and the CPEs of the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste

■ Illnesses and Injuries

Lost time due to illness (e.g. number of cases per 200,000 hrs worked)

Lost time due to injuries (e.g. number of cases per 200,000 hrs worked)

■ Environmental incidents

Number of major environmental incidents

Number of minor environmental incidents

■ Energy consumption

Renewable energy consumption (Gigajoules)

Non-renewable energy consumption (Gigajoules)

■ Water consumption
m^3 (cubic metres)

■ Air emission
tonnes

■ Waste

Recycled (tonnes)

Incinerated (tonnes)

Landfilled (tonnes)

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5. What is involved in implementing Environmentally Sound Management?

Implementing an Environmental Management System might be perceived as demanding of limited time and money with uncertain benefits. In reality it does not have to be so.

In today's economy having a quality image and being recognised as an environmentally soundly managed company presents an enterprise with a distinct marketing advantage for its products. Furthermore there is a need for a single management system that addresses diverse issues such as environmental regulations, health and safety, and complaints handling, and does that in a way that enables continual improvement in a competitive business environment.

The ISO 14000 family of standards is generic in nature and applicable to all companies, regardless of the type, structure and size of the business. Whilst ISO 14001:2004 specifies what is required to be done by a company, it does not indicate how it should be done, so it gives companies a lot of flexibility to run their business with their own knowledge, expertise and insight.

The new standard is also appropriated for the SMEs because it demands less paperwork and bureaucracy than previous versions. ISO 14001:2004 requires only 12 documented procedures and leaves it to the company to decide if more are needed. Companies will, however, be required to provide objective evidence that the EMS has been effectively implemented and embedded in the company.

SMEs may find it appropriate to include the description of their entire Environmental Management System within a single manual, including all the documented procedures required by the standard. It makes sense to keep things simple, which also enables more involvement from more personnel so as to make the Environmental Management System a lively part of the company, as it should be.

The process-based approach given in ISO 14001:2004 will tend to ensure that systems are documented and implemented in a manner that suit the company's own way of doing business. This approach makes it easier for SMEs to implement, instead of just taking over an artificial structure of an Environmental Management System imposed from the outside or bought as framework software from a consulting firm. It will also be easier to ensure effective internal communication and improved utilisation of resources, and people will better understand their roles and responsibilities in the company.

Environmental Management System implementation should be driven by a desire to:
- improve performance and therefore increase bottom line profits
- effectively manage risk
- create a culture of opportunity
- acquire a symbol of international recognition
- ensure continual improvement
- reduce waste of resources
- improve overall efficiency
- consistently control key processes
- improve public relations
- meet certain tender list requirements

Many aspects of the Environmental Management System can add value to the activities of the company and its environment and promise a return on investment in relation to the resources required to implement and maintain each aspect.

The added value, such as reduced insurance premiums or increased economic efficiency, related to the drivers listed above may be ascribed to:
- a reduction in the risk of occurrence of a safety incident or accident
- a reduction in the risk of occurrence of an environmental incident or accident
- improved control of specified processes
- improved management of resources

Environmental Management System

The introduction of an Environmental Management System in a recycling company provides a valuable tool that helps control the business and the environment. The Environmental Management System allows adding certain sector specific requirements such as the six Core Performance Elements published and recommended by the OECD. Having an Environmental Management System means in the first place a pro-active step towards the community, towards other industries, customers and suppliers, and showing that no effort will be spared to protect the environment. The standard has a required procedure that maintains this pro-active communication that has proven to be most valuable to recycling companies.

6. Structure, Scope and Application

Many companies today conduct environmental audits of their facilities to see if they conform to local, provincial and national regulations. However, these audits by themselves will not guarantee continual improvement or future conformance. Only a well-established Environmental Management System (EMS) can do that. The thrust of ISO 14001 is to give the minimal structure for such a system.

ISO 14001 lays out the system and the structure, and then it is up to the company management to set the level of environmental performance and then to pursue those targets.

Before an Environmental Management System can be considered, top management must evaluate the risks and the benefits to the company. ISO 14001, being a universal standard, is in its raw form not suitable for immediate use by any specific company, so it must be customised to fit and so to meet the needs and the conditions of the company or of a particular site of the company. It should be modelled and formed within the requirements, to the shape of the company.

POTENTIAL RISKS AND BENEFITS

Financial risks

The demand on resources to implement an Environmental Management System could be substantial particularly for larger or more complex companies. Not only must the cost of physical resources such as training, environmental monitoring and document management be taken into account, but also the added burden it may place on management should be considered. Integrating the Environmental Management System with existing management systems will certainly diminish some of the costs and burdens. The management representative for QMS (e.g. ISO 9000) can also take that role for the EMS (e.g. ISO 14000).

Legal risks

ISO 14001 is a standard that requires auditing, monitoring and reporting. Some of the information gathered during audits and evaluations may be of a sensitive nature for commercial, legal or public relationship reasons and is not necessarily protected from disclosure to, for example, the regulating authorities, competitors or the press. Some outside organisations, such as activists or commercial competitors, could use the information against the company. Though not a compliance standard, the technical data gathered can be used by internal and external stakeholders to assess regulatory compliance. To minimise such risks, corrective actions should be well documented and reported with audit results.

Financial benefits

There are numerous benefits of implementing an Environmental Management System. ISO 14001 requires management commitment to improve performance. By integrating the EMS with other management systems, overall company performance including financial performance will improve. A strong management system will make access to capital from financial institutions and stockholders more likely, enabling growth and positioning for a stronger competitive advantage. In addition, as consumers become more environment-aware they demand more products and services from environmentally soundly managed companies. Insurance companies may be more willing to write coverage for companies with an environmentally sound management system in place, thereby reducing overall insurance costs and risks to the recycling company.

An Environmental Management System that is well implemented and well maintained will create benefits enough. If companies go a step further and implement the OECD Core Performance Elements by integrating them in their existing Environmental Management System, then recognition of the company's Environmentally Sound Management should open, and keep open, the door to international recycling business with international clients and suppliers.

Legal benefits

Though ISO 14001 is basically a voluntary standard it may become a prerequisite for operating within some countries depending on their government policies.

The OECD recommendation with its six Core Performance Elements was submitted to the member countries of the OECD for consideration for implementation. Although recommendations are not binding for the member countries, it is expected that all member countries will do their utmost to implement these Environmental Management System principles on which they have all agreed.

Employee and public relations

As ISO 14001 requires participation and commitment from all levels within a company, all employees become more aware of the impacts their actions have on the communities in which they live and are empowered to improve environmental performance benefiting their family and neighbours. Employees' morale and overall company performance benefits from having an Environmental Management System, as will the company's relationship with external environmental organisations and local and national agencies and regulators.

Requirements

Section four of ISO 14001 starts with the quote: "The company shall establish and maintain an EMS". The word «shall» means the company must take this action.

Thus, the management must have a well-documented and adequate EMS available and implemented that can be used as evidence to an auditor as being in conformance and effective.

Environmental Policy (clause 4.2)

Top management must design and communicate a company-wide policy on environmental issues. The environmental issues relate to anything that has an impact on the immediate or surrounding environment, such as emissions to air, land and water, noise emissions and any effects on the local community. Therefore the environmental policy will have to be relevant to the size and nature of the company.

The management must state that continual improvement is one of its strategic goals. It must say that the company will comply with all relevant regulations. The management has to state how and when it will review its system, including its stated targets and objectives.
All employees and other people working for the company (consultants, subcontractors etc.) have to be aware of the policy and it has to be made available to the public.
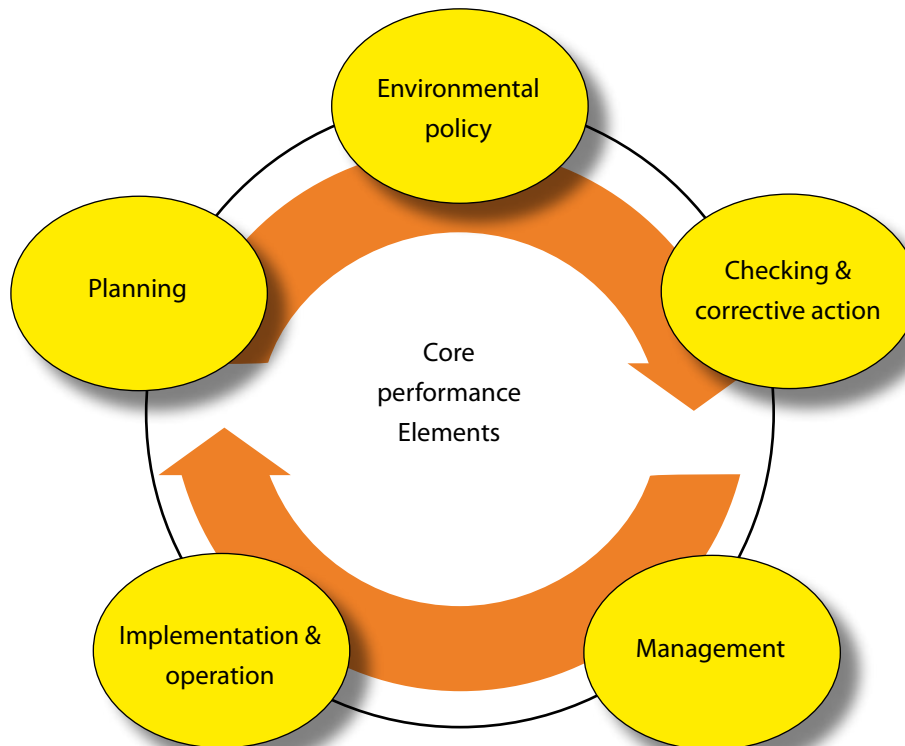
The 5 fundamentals to ISO 14001 integrated with the Core Performance Elements.

Planning (clause 4.3)
Planning begins by defining where the company can control the environmental results of its operations, products, and services. Then it has to compile an up-to-date list of environmental regulations and requirements that apply to the company. Using this information, the management then begins to set the targets and objectives.

Targets and objectives have to be readily measurable. In addition, management has to consider which of its company's impacts can be controlled economically. Also, the concerns of other outside parties, such as the neighbourhood, society and stakeholders, have to be considered. At the same time, management has to stay true to the original environmental policy.

Each target and objective is then assigned to a specific job title [position] for control and continual improvement. A specific timeframe will have to be created. As new projects or production methods are adopted, the EMS plan will have to be changed or expanded to include these developments.

The new version of ISO 14001 also includes the stipulation that the company shall ensure that the identified significant environmental aspects are taken into account in establishing, implementing and maintaining the company's EMS.

It is important that the company implements a procedure to identify the environmental aspects of its activities, products and services, and a procedure for determining those aspects that can have a significant impact on the environment.

With regards to legal and other requirements, the company must implement a procedure for identifi-

cation and access to the legal requirements and for determining how these requirements apply to its environmental aspects (4.3.1 Environmental aspects and 4.3.2 Legal and other requirements).

Implementation and operation (clause 4.4)
Management has to define lines of responsibility and then provide the people and resources to get the job done. Top management must also assign a manager as the official EMS co-ordinator (Management Representative).

This co-ordinator is responsible for ensuring the implementation and then regularly reviewing the EMS and reporting to management. All of this has to be documented according to a procedure.

All employees that can have a significant impact on the environment have to be trained to meet identified levels of skills and knowledge. This is very similar to the training requirements of ISO 9000.

In addition, management must train all employees on the importance of conformance to the environmental policies and procedures, the type of impacts the company has, who has responsibility for controlling which impacts, and the potential damage from non-conformance.

Any communication internal to the company concerning environmental issues shall be documented. Management will also need a formal system for recording and acting on communications received from external sources, i.e. suppliers, customers, regulators, environmental groups, etc. Likewise, management needs a formal procedure for releasing environmental information to the public.

Naturally, document control plays a central role in the EMS and so a written procedure is required. [For companies with ISO 9001 it is recommended that the Level II document created to meet the document control requirement from that Standard be used to meet this same requirement.]

An environmental control plan has to be developed for daily operations. Such a plan would be very similar to the quality control plans required in ISO 9000. It is advised to use a flow chart of the process to identify points where environmental control is required. Each of these points would be listed on the plan along with the criteria to be met and how to react if they are not met. In addition, it should be explained how to communicate the requirements to suppliers and contractors.

Unique to ISO 14001 is the need for a procedure to cover emergencies. If the company suffers a spill or accident, a plan has to be designed to prevent further environmental damage while also correcting the situation. After any accident or emergency is corrected, the management should review what happened and decide how to prevent a reoccurrence and whether the procedure should be changed.

The company must implement a procedure for its employees and subcontractors to make them aware of the importance of conformity with the environmental policy, the significant environmental aspects, their roles and responsibilities and the potential risk of departure from this procedure.

In conclusion, the company must establish and implement procedures as required in clause 4.4.2 Competence training and awareness, 4.4.3 Communication, 4.4.4 Documentation, 4.4.5 Control of documents, 4.4.6 operational control, and 4.4.7 Emergency preparedness and response.

Checking (clause 4.5)

Now that it has been identified what will be monitored and where, a procedure needs to be designed on how to do this. First a system has to be set up where key environmental characteristics are measured and recorded.

These are done in a fashion similar to a Statistical Process Control (SPC) system, that is, a regularly scheduled activity assigned to specific people. Then the written data have to be handled, analysed, and stored (Retention policy).

In addition, any measurement equipment will come under the ISO 9000 procedure for the maintenance and calibration measuring devices.

A corrective action procedure is needed that identifies when to react, who responds, and what actions are taken.

Management should have an internal audit of the complete EMS performed at least once a year, for which the company's internal auditor will need to have knowledge, experience, and/or training in environmental assessment. It needs to understand why a particular characteristic is being checked and what potential impacts it could create.

In conclusion, Clause 4.5 requires procedures for 4.5.1 Monitoring and measurement, 4.5.2 Evaluation of compliance, 4.5.3 Nonconformity, corrective action and preventative action, 4.5.4 Control of records, and 4.5.5 Internal audit.

Management Review (clause 4.6)

At regular intervals, usually at least once a year, top management needs to review the entire EMS for completeness and effectiveness. This review will consist of the results of internal audits, reports on new requirements and regulations, and the management's discussion of the strategic plan for the company. Then upper management decides whether to modify or change the existing EMS to better meet its changing needs and targets. All of this has to be documented.

The Core Performance Elements integrated in the Structure

Only certain requirements of OECD Core Performance Element CPE-1 are integrated in the ISO 14001 structure. This CPE asks for an applicable Environmental Management System to be in place, which means that this CPE is the shell around the whole structure. CPE-1 is also applicable to the Environmental Policy and the objectives, targets and programmes.

An important additional requirement for Environmentally Sound Management (ESM) the OECD CPE-1 requires that a fully developed EMS should be certified by a recognised party, and that large licensed /authorised /permitted recovery and recycling facilities should be subject to periodic inspections and/or audits, normally on an annual basis, by a recognised independent auditor; whilst Verification and Certification for SMEs may be carried out every three years, otherwise annually. SMEs should ascertain beforehand what other positive incentives and/or relief measures are provided nationally with respect to Verification and Certification such as reduced permit fees, reduced registration fees or other financial assistance.

Another important additional requirement for Environmentally Sound Management (ESM) is that the OECD CPE-1 requires that large facilities make publicly available an annual report describing the firm's EMS system and the achieved environmental, health and safety performance. Concerning SMEs, the reporting procedures should be simplified in comparison with large facilities, for example the environment, health and safety report could be made publicly available every three years.

CPE-2 is asking the operation to take sufficient measures to safeguard occupational and environmental health and safety. In the Emergency Preparedness and Response and Operational Control aspect of this structure, sufficient attention must be given to the contents of CPE-2. This CPE goes further than the requirements of the ISO Standard because it includes the community and future aspects.

Many aspects of CPE-3 are found in the element Checking (clause 4.5). A new aspect is that off-site recovery or disposal should go to environmentally soundly managed operations only. Other aspects of CPE-4 are applicable to the sections Operational Control (clause 4.4.6) and Emergency Preparedness and Response (clause 4.4.7).
CPE-4 states requirements for appropriate and adequate training of personnel. This is mainly covered by Competence, Training and Awareness (clause 4.4.2).This CPE puts more responsibility on the shoulders of the employees and highlights the need for intensive training to eliminate hazards and risks to themselves, the operation and the surroundings.
High requirements are put on documentation of the training and performance of employees in this respect.

Also in regard to Emergency Preparedness and Response (clause 4.4.7) CPE-5 requires an adequate emergency plan. This plan must be based on evaluation of potential and existing risks. There is a requirement in the CPE for a complete contingency plan.

CPE-6 is defining requirements for the closure and after-care of operations. This has related elements in clause 4.4, but CPE-6 is more concrete in its requirements and stretches the responsibility from management over the operational responsibility. [BIR Note – an after-care plan is not necessary for every recycling company]

Conclusion
ISO 14001 requires that companies implement these twelve procedures:

1. **Procedure to identify environmental aspects (4.3.1)** of the company's activities, products and services that can have significant impact on the environment.
2. **Procedure to identify applicable legal and other requirements (4.3.2)** and to determine how these requirements apply to its environmental aspects.
3. **Procedure competence, training and awareness (4.4.2)** to make employees aware of the importance of conformity with the policy, the significant environmental aspects of their roles and responsibilities and the potential consequences.
4. **Procedure for internal and external communication (4.4.3)** across the various levels within the company and receiving, documenting and responding to relevant communication from external parties.
5. **Procedure control of documents (4.4.5)** to approve documents, review and update them, and

to ensure that the current revision status is identified and available. Also to ensure that documents remain legible and identifiable.

6. **Procedure operational control (4.4.6)** to control situations where loss of control could lead to deviation from the policy, objectives and targets. This procedure should also cover the identification of significant environmental aspects of goods and services used and communicate applicable procedures and requirements to suppliers and contractors.

7. **Procedure emergency preparedness and response (4.4.7)** to identify potential emergency situations and potential accidents.

8. **Procedure monitoring and measurement (4.5.1)** to monitor on a regular basis the key characteristics of the company's operations.

9. **Procedure evaluation of compliance (4.5.2)** for periodically evaluating compliance with the applicable legal requirements.

10. **Procedure nonconformity, corrective action and preventative action (4.5.3)** for dealing with nonconformities and for taking corrective and preventative actions.

11. **Procedure control of records (4.5.4)** for the identification, storage, protection, retrieval, retention and disposal of records.

12. **Procedure internal audit (4.5.5)** that addresses the responsibilities and requirements for planning and conducting audits and determines audit scope and criteria.

To keep the company's Environmental Management System as simple as possible, implementers should work with these procedures and add procedures only in cases of complex operations. Do not add more if there is no strict need for a procedure. 95% of all operations in the recycling industry can handle their Environmental Management System based on these twelve procedures.

One may then view Environmentally Sound Management as comprising the five fundamentals of an Environmental Management System (Environmental Policy; Planning; Implementation and operation; Checking and Corrective Action; Management Review), with its twelve procedures, combined with the OECD's six Core Performance Elements.

It would be fair to say that a company that has ISO 14001 in place, with the five basic elements of the EMS (Environmental Policy; Planning; Implementation and operation; Checking and Corrective Action; Management Review) with continuous improvement, would be well on its way to conforming to the OECD's CPE requirements as they partly overlap with the ISO 14001 requirements, particularly as the CPEs are tailored to the recycling industry's practices and its risks relating to safety, health and the environment.

7. Gap analysis template for Environmentally Sound Management.

Note: In the Status column NA would mean Not Applicable

ISO 14001:2004 and OECD CPE Requirements	Status Yes/No/NA	Action
4 Environmental Management System		
4.1 General Requirements		
Has the facility established, documented, implemented, maintained and continually improved an EMS? **(CPE-1)**		
Is there a minimum of 3 months objective evidence to conclude the system is fully implemented and monitored for effectiveness?		
Is this EMS certified by a recognised party? **(CPE-1)**		
Is the facility audited before certification by an independent auditor? **(CPE-1)**		
Is the facility audited on a regular basis by an independent auditor to verify conformance to the EMS requirements and the six Core Performance Elements? **(CPE-1)**		
Does management regularly monitor and examine the progress towards environmental health and safety objectives? **(CPE-1)**		
Is the facility assessed on the performance regarding environmental, health and safety aspects against measurable objectives? **(CPE-1)**		
4.2 Environmental policy		
Is there an Environmental Policy, which is identified as such and documented?		
Does the policy include commitment to:		
• Continual improvement?		
• Prevention of pollution?		
• Compliance with applicable legislative and regulatory requirements?		
• Other requirements to which the facility subscribes?		
Is it appropriate to the nature, scale and environmental impacts of its activities, products and services?		
Does it provide a framework for setting and reviewing environmental objectives and targets?		
Is adequate and timely environmental, health and safety information regarding the facility's activities collected and evaluated? **(CPE-1)**		
Is there a practice or procedure to communicate the Environmental Policy to all employees? Is it consistently followed?		
Is there a practice or procedure to make the Environmental Policy available to the public and is it consistently followed?		

Did top management approve the current version of the Environmental Policy when it was issued?		
Is the procedure periodically reviewed and revised so as to keep the Environmental Policy up-to-date?		
Is the Environmental Policy communicated to all employees and other people working there, on behalf of the facility?		

4.3 Planning		
4.3.1 Environmental aspects		
Is there a procedure to identify environmental aspects of company activities, procedures and services that it can control and influence?		
Does the procedure determine which identified environmental aspects have or can have significant environmental impacts?		
Is it ensured that the aspects relating to the significant impacts are considered in setting environmental objectives?		
Is the procedure implemented and consistently followed?		
Is the procedure periodically reviewed and revised?		
4.3.2 Legal and other requirements		
Is there a procedure to identify and have access to all:		
• Government statutory requirements?		
• Regulatory requirements?		
• Other legal requirements such as permits, consents, etc?		
• Other requirements subscribed to, such as industrial standards, corporate requirements, contracts, customer requirements, agency orders and voluntary initiatives?		
Do the management and employees have reasonable access to the requirements identified under the procedure?		
Is the procedure implemented and consistently followed?		
Is the procedure periodically reviewed and revised so as to keep it up-to-date?		
Is it ensured that legal and other requirements are taken into account in establishing, implementing and maintaining the EMS?		
4.3.3 Objectives, targets and programme(s)		
Are there established, implemented and maintained documented environmental objectives and targets?		
Are they set at relevant functions and levels?		
Are the objectives and targets measurable with the environmental policy, including the commitments to prevention of pollution?		

Does the facility take into account the legal and other requirements to which it subscribes and its significant environmental aspects?		
Does this include the designation of responsibility for achieving objectives and targets at relevant levels?		
And does this include the time frame by which they are to be achieved?		
Does the facility have measurable objectives for continual improvement, and is periodic review of these objectives included? **(CPE-1)**		

4.4 Implementation and operation		
4.4.1 Resources, roles, responsibility and authority		
In each of the environmental function areas, are the roles, responsibilities and authorities:		
• Established and implemented?		
• Maintained and improved?		
• Documented and communicated?		
• Understood?		
Does management consistently provide resources essential to the implementation and control of the EMS?		
Do resources include human resources and specialised skills?		
Do resources include Technology?		
Do resources include Financial resources?		
Has top management appointed a specific Management Representative who has defined roles, responsibilities and the authority for:		
• Ensuring ISO 14001 EMS requirements are established, implemented and maintained?		
• Reporting on the performance of the EMS to top management for review and as a basis for improvement of the EMS?		
4.4.2 Competence, training and awareness		
Can the facility identify all employees, or persons acting on the facility's behalf, whose tasks may have the potential to cause a significant environmental impact?		
• Are the persons thus identified competent on the basis of training, appropriate education or experience?		
• Are the records of their training/experience and competence retained?		
Does the facility identify training needs associated with its EMS and environmental aspects?		
Is there a procedure established, implemented and maintained to make the person working for it or on its behalf aware of:		

• The importance of conformance with its environmental policy and procedures and with the requirements of its management system?		
• The significant environmental impacts, actual and potential, of their work activities and the environmental benefits of improved personal performance?		
• Their role and responsibilities in achieving conformance with its environmental policy and procedures and with the requirements of the EMS, including emergency preparedness and response requirements?		
• The potential consequences of departure from specified environment related operating procedures?		
Does the facility have an appropriate and adequate training programme for the personnel involved in the management of waste and materials, in particular of hazardous waste and materials? **(CPE-4)**		
Has the facility defined and documented the responsibility, authority and interrelations of key personnel, who manage, perform and monitor the activities that may have adverse effects on the environment? **(CPE-4)**		
Is the training programmes properly documented? **(CPE-4)**		
4.4.3 Communication		
Has the facility established, implemented and maintained an environmental communications procedure relating to its environmental aspects and its EMS that provide for:		
Internal communications between various levels and functions of the facility?		
Receiving, documenting and responding to relevant communications from external interested parties?		
Is the communications procedure implemented and consistently followed?		
Is the communications procedure periodically reviewed and revised where needed so as to keep it up-to-date?		
4.4.4 Documentation		
Does the EMS documentation include:		
• The environmental policy, objectives and targets?		
• A description of the scope of the EMS?		
• A description of the main elements of the EMS and their interaction and reference to related documents?		
• Documents, including records, determined by the facility to be necessary to ensure effective planning, operation and control of processes that relate to environmental aspects?		

4.4.5 Control of documents		
Is there an established, implemented and maintained procedure for controlling all EMS documents required by ISO 14001 and other requirements relating to the system?		
Has the facility a procedure established, implemented and maintained to:		
• Approve documents for adequacy prior to issue?		
• Review and update as necessary and re-approve documents?		
• Ensure that changes and the current revision status of documents are identified?		
• Ensure that relevant versions of applicable documents are available at points of use?		
• Ensure that documents remain legible and readily identifiable?		
• Ensure that documents of external origin determined by the facility to be necessary for planning and operating of the EMS are identified and their distribution controlled?		
• Prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose?		
4.4.6 Operational control		
Has the facility identified those operations and activities that are associated with the identified significant environmental aspects consistent with the environmental policy, objectives and targets, in order to ensure that those operations and activities are carried out under specified conditions by:		
• Establishing, implementing and maintaining documented procedures to control the situations where their absence could lead to deviations from the environmental policy and objectives and targets?		
• Stipulating operating criteria in the procedures?		
• Establishing, implementing and maintaining procedures related to the identified significant environmental aspects of goods and services used by the facility and communicating applicable procedures and requirements to suppliers, including contractors?		
Is on-site recovery or disposal of waste generated by the process concerned carried out in compliance with the applicable laws and regulations and recorded appropriately? **(CPE-3)**		
Is outgoing waste destined for recovery or disposal appropriately recorded and handed over only to environmentally sound recovery and/or disposal operations? **(CPE-3)**		

Does the facility have an adequate plan for closure and aftercare? (CPE-6) [BIR Note – this is not necessary for every recycling company and depends on the level of risk]		
Is the closure plan periodically updated? **(CPE-6)**		
Are there financial guarantees to ensure that the necessary measures are undertaken upon definite cessation of activities to prevent any environmental damage and to ensure that the return of the site of operation is to a satisfactory state, as required by applicable laws and regulations? **(CPE-6)**		
4.4.7 Emergency preparedness and response		
Has the facility established, implemented and maintained procedures to:		
• Identify potential for accidents that can have an impact on the environment?		
• And how it will respond to them?		
Does the facility respond to actual emergency situations and accidents and prevent or mitigate associated adverse environmental impacts?		
Does the facility periodically review and, where necessary, revise its emergency preparedness and response procedures, in particular, after the occurrence of accidents or emergency situations?		
Does the facility test such procedures where practicable?		
Does the facility take sufficient measures to safeguard occupational and environmental health and safety? **(CPE-2)**		
Are adequate measures taken to avoid unacceptable occupational health and safety risks? **(CPE-2)**		
Are adequate measures taken to prevent exposure to unacceptable environmental health and accident risks to the people working and living in the vicinity of the facility? **(CPE-2)**		
Do these measures include national and international regulations, agreements, principles and standards, whether mandatory or voluntary? **(CPE-2)**		
Is reliable information on the activities of the facility that may impact the environment or the health and safety of personnel available upon request to the public in a timely manner? **(CPE-1) (CPE-3)**		
Does the facility have an adequate emergency plan, including monitoring, reporting and responding to accidental or otherwise exceptional pollutant releases, including emergencies such as accidents, fires, explosion, abnormal operating conditions etc.? **(CPE-5)**		
Is this emergency plan based on the evaluation of existing and potential risks? **(CPE-5)**		

Is there an emergency co-ordinator designated to handle hazardous wastes? **(CPE-5)**		
Is there a complete and up to date contingency plan available that covers both short term and long term remedial activities? **(CPE-5)**		
Is the emergency plan periodically reviewed by the relevant authority and/or auditor? **(CPE-5)**		

4.5 Checking		
4.5.1 monitoring and measurement		
Has the facility established, implemented and maintained procedures to monitor and measure on a regular basis the key characteristics of its operations and activities that can have a significant impact on the environment? **(CPE-3)**		
Does the facility have a reporting programme? **(CPE 3)**		
Does the reporting programme cover relevant legal requirements, including key process parameters? **(CPE-3)**		
Does the reporting programme cover compliance with the applicable safety requirements? **(CPE-3)**		
Does the reporting programme cover effluents and emissions, incoming, stored and outgoing waste, in particular hazardous waste? **(CPE-3)**		
Do the procedures of monitoring and measuring include requirements for:		
• Information to monitor performance?		
• Applicable operational controls?		
• Conformance with the defined objectives and targets?		
• Conformity with the facility's environmental objectives and targets?		
Does the facility ensure that calibrated or verified monitoring and measurement equipment is used and maintained?		
Are the associated records retained?		
Does the facility maintain records on the generation, collection, recovery or disposal of waste, its types and amounts, and are these available to competent authorities upon request? (CPE-3)		
4.5.2 Evaluation of compliance		
Are there established, implemented and maintained procedures for periodically evaluating compliance with applicable legal requirements?		
Are there records of the results of these periodic evaluations?		
Does the facility evaluate compliance with other requirements to which it subscribes?		

4.5.3 Nonconformity, corrective action and preventative action		
Are there established, implemented and maintained procedures for dealing with actual and potential nonconformities and for taking corrective action and preventative action?		
Do the procedures define requirements for:		
• Identifying and correcting nonconformities and taking actions to mitigate their environmental impacts?		
• Investigating nonconformities, determining their cause and taking actions in order to avoid their recurrence?		
• Evaluating the need for actions to prevent nonconformities and implementing appropriate actions designed to avoid their occurrence?		
• Recording the results of corrective and preventative actions?		
• Reviewing the effectiveness of corrective and preventative actions taken?		
Are actions taken appropriate to the magnitude of the problems and the environmental impact?		
Does the facility ensure that necessary changes in the EMS are documented?		
4.5.4 Control of records		
Does the facility establish and maintain records as necessary to demonstrate conformity to the requirements of ESM and of ISO 14001?		
Are the results achieved?		
Does the facility establish, implement and maintain a procedure for the identification, storage, protection, retrieval, retention and disposal of records?		
4.5.5 Internal audit		
Does the facility ensure that internal audits of the EMS are conducted at planned intervals to:		
• Determine whether the EMS conforms to planned arrangements for environmental management including the requirements of ISO 14001?		
• Determine whether the EMS has been properly implemented and is maintained?		
• Provide information on the results of audits to management?		
Are audit programmes planned, established, implemented and maintained by the facility?		
Are audit programmes taking into consideration the environmental importance of the operations concerned and the results of previous audits?		

Are audit procedures established, implemented and maintained to address:		
• The responsibility and requirements for planning and conducting audits, reporting results and retaining associated records?		
• The determination of audit criteria, scope, frequency and methods?		
Do the selection of auditors and the conduct of audits ensure objectivity and the impartiality of the audit process?		

4.6 Management review		
Does top management review the facility's EMS at planned intervals to ensure its continuing suitability, adequacy and effectiveness?		
Do reviews include assessing opportunities for improvement and the need for changes to the EMS, including the environmental policy and the environmental objectives and targets?		
Does input to management reviews include:		
• Results of internal audits and evaluations of compliance with legal requirements and with other requirements to which the facility subscribes?		
• Communications from external interested parties, including complaints?		
• The environmental performance of the facility?		
• The extent to which objectives and targets have been met?		
• Status of corrective and preventative actions?		
• Follow-up actions from previous management reviews?		
• Changing circumstances, including developments in legal and other requirements related to its environmental aspects?		
• Recommendations for improvement?		
Do the outputs from management reviews include any decisions and actions related to possible changes to environmental policy, objectives, targets, and other elements of the EMS consistent with the commitment to continual improvement?		

The implementation flow chart

The implementation of an Environmental Management System takes some preparation and effort to get everyone, employees and management, motivated and involved.

The implementation of a formal management system is best handled as a specific project with a project manager, who should be a key member of the company's management team. In the ideal situation this person will also be the Management representative, but skills in project management are essential.

It is important that none of the stages in the flow chart are omitted as all elements are necessary and all necessary elements are included. The existing system of management and working practices in the company must be known in some detail before the framework of the formal EMS documentation can be designed, since the system is best designed around existing processes and procedures. Besides, the development of new systems that require additional resources may simply delay the implementation process.

```
                            ┌──────────────┐
                            │    Start     │
                            └──────────────┘

┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│  Evaluate the    │   │ Define           │   │ Carry out        │
│  need and goals  │   │ environmental    │   │ internal audit,  │
│  for implementing│   │ aspects and      │   │ conduct a        │
│  an EMS          │   │ identify hazards │   │ management review│
└──────────────────┘   └──────────────────┘   └──────────────────┘

┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│ Obtain knowledge │   │ Plan the time    │   │ Pre-assessment   │
│ about ISO 14001  │   │ frame and        │   │ and application  │
│ and OECD Core    │   │ communicate it   │   │ for certification,│
│ Performance      │   │                  │   │ and certification│
│ Elements and     │   │                  │   │                  │
│ appoint a Mgt.Rep│   │                  │   │                  │
└──────────────────┘   └──────────────────┘   └──────────────────┘

┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│ Raise awareness  │   │ Draft the EMS    │   │ Conduct periodic │
│ and provide      │   │ manual and       │   │ evaluations,     │
│ training         │   │ develop the EMS  │   │ initiate         │
│                  │   │ policy           │   │ corrective and   │
│                  │   │                  │   │ preventative     │
│                  │   │                  │   │ actions          │
└──────────────────┘   └──────────────────┘   └──────────────────┘

┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│ Do initial review│   │ Implement the EMS│   │ Evaluation and   │
│ and gap analysis │   │                  │   │ system           │
│                  │   │                  │   │ maintenance      │
└──────────────────┘   └──────────────────┘   └──────────────────┘

                            ┌──────────────┐
                            │   Finish     │
                            │Implementation│
                            └──────────────┘
```

Step 1, Evaluate the need and goals for implementing an EMS

An EMS is good business practice that should be embraced by any well-informed professional management team. ISO 14001 can deliver many benefits, principally because the majority of the implemented EMSs work.

Nevertheless top management must evaluate the risks and the benefits to the company of an EMS, so identify why an EMS is needed and consider if this will improve the strength of the company, now and in the future. The EMS must be custom fit to meet the needs and conditions of the company.

- Identify the Legal and other requirements that apply to the company operations and document them.
- Define and document the views of interested and third parties.
- Define the requirements to meet the OECD's Core Performance Elements and make all key personnel aware of the scope of these requirements and the impact for the company.

Identify Legal and other Requirements

**References:
ISO 14001: 2004
4.3.2
OECD CPE 1-6**

**Start
of the
Implementation**

Evaluate objectives and targets for implementing the EMS

**Define and document
views of interested third parties**
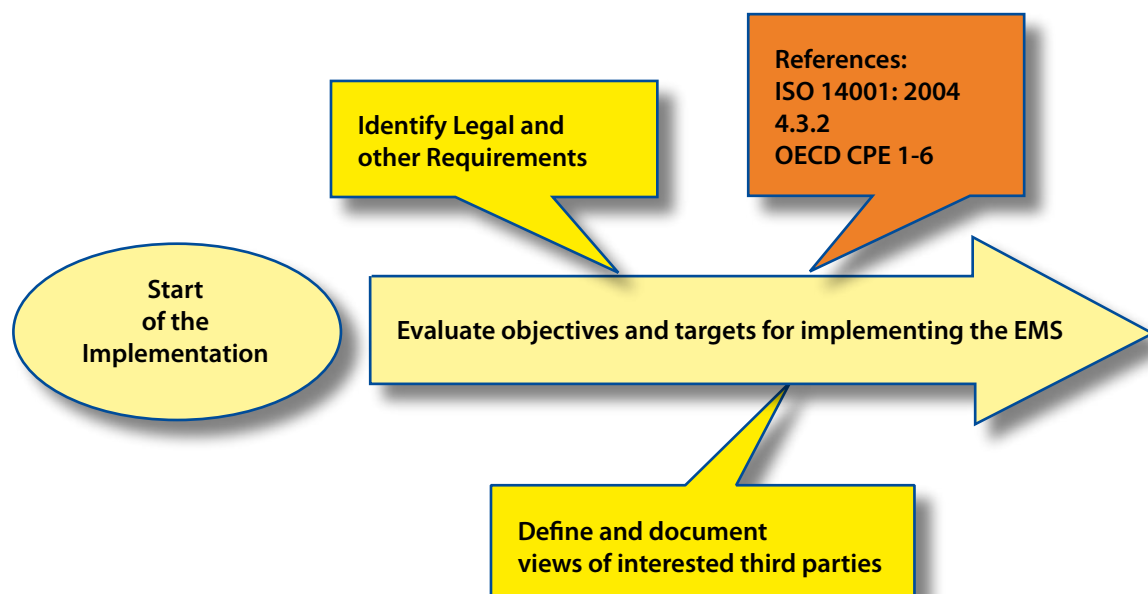
Before continuing:

✔ Check that the management is committed to implement an EMS according to ISO 14001.

✔ Communicate the objectives and targets for the implementation of the EMS to all the staff.

✔ Identify legal and other requirements. Define and document views of interested third parties.

✔ Discuss the contents of the OECD Core Performance Elements and communicate these with key personnel.

● Get commitment from management.

Step 2, Obtain knowledge about ISO 14001 and the OECD Core Performance Elements. Appoint a Management Representative

Appoint an employee to the post of Management Representative. Make this person aware of the responsibilities and the long-term involvement of this function.

Decide on the responsibilities of the person who will be involved in developing and documenting the EMS, including the appointment of a management representative who will oversee the implementation of the EMS. This person does not have to be the same as the implementer.

Establishing a project team may also prove to be useful to oversee progress and in providing resources wherever required. If within the company adequate competence is available, but resources such as time and knowledge cannot be made available, then a consultant should be appointed.

Before doing so, it is good to realise that with subcontracting a part of the implementation process, a part of the knowledge and the commitment is lost. A company can learn more and better from its mistakes and own developments, than from just doing what a consultant is advising. Carry out a cost-benefit analysis of hiring a consultant and agree on the scope and time frame. Prepare a cost estimate and procure and allocate the resources for this project.

To assist the Management Representative, it would be useful to set up an ISO team to create involvement and expertise. This team should consist of involved employees, representing various levels within the company. The implementation of an EMS is not work for one person only. A team can provide knowledge and support, but also it creates involvement and commitment. Some authority can be given by top management to speed up the process.

Raise commitment from the top management. If there is no commitment at this stage of the implementation process, then it should be stopped.

Discuss the contents of the OECD requirements with the ISO team. Include the CPEs into the training. Provide management with in-depth knowledge about the Core Performance Elements.

Set up an
ISO TEAM

Obtain knowledge about
ISO 14000

References:
ISO 14001:2004
OECD CPE 1-6

Obtain knowledge about ISO 14001 requirements
Appoint a Management Representative
Organise resources

Select and appoint an employee as the
Management Representative
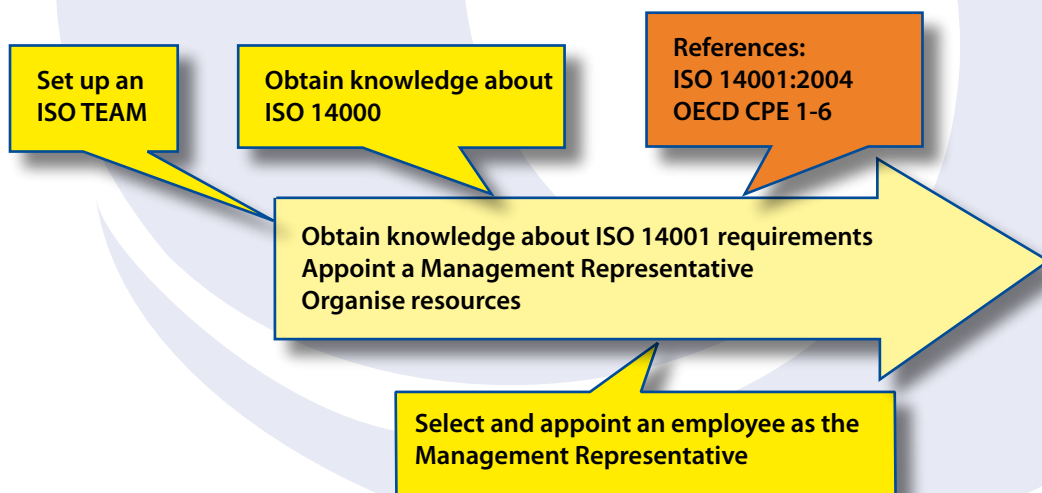
Before continuing:

✔ Check that the contents and the philosophy of ISO 14001 have been made clear and are accepted.

✔ Carefully select the right person for the position of Management Representative. Ensure acceptance throughout the whole company.

✔ Check to see that the management representative has been appointed at this stage of the implementation process. Do not continue without the management representative.

✔ If possible, the implementer should be assured of the help and support of a team of employees (ISO team).

✔ Check to see if a consultant should be involved in this project. Make sure that a cost benefit analysis has been carried out beforehand and with a positive result.

✔ Check if commitment has been made at this stage of the implementation process, especially about the OECD requirements; if not it should be stopped here.

● Be assured of the help of an ISO team.

✔ Check that the needed resources such as manpower, money and time have been made available to the management representative and the ISO team.

✔ Define key roles and responsibilities.

✔ Promote /endorse the OECD Core Performance Elements.

▶ Step 3, Raise awareness and provide training

Raise awareness about EMS and the OECD's CPE requirements amongst all personnel performing activities and tasks that affect the environment. Plan for and provide specific training on how to develop the environmental manual procedures and work instructions. Besides that, it is important to instruct people how to identify and implement improvement processes and how to audit compliance with the EMS and CPEs.

The ISO team and/or the consultant should be a resource for assistance during the training.

**Provide internal auditor training for selected employees
Get the ISO team involved**

Provide dedicated training to all employees

**References:
ISO 14001:2004
OECD CPE 1-6**

Raise awareness of EMS and OECD's CPEs Provide training

Raise awareness and commitment throughout the whole organisation
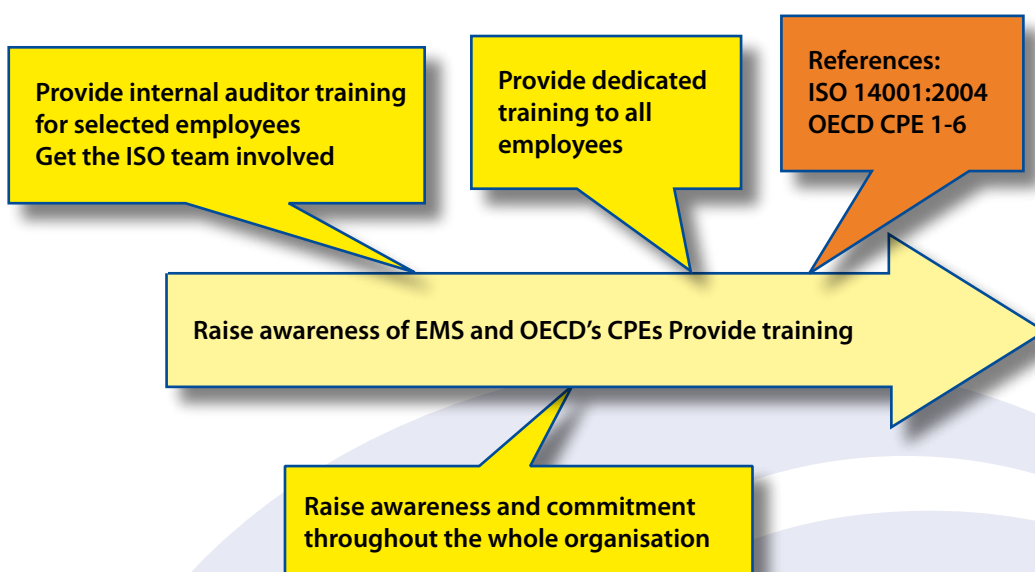
Before continuing:

✔ Check that training has been provided to the people involved in the writing of procedures and work instructions. Make sure that the written documents reflect the actual situation and not the desired situation.

✔ Check if a number of people have been selected as internal auditors and that the auditor training has been provided.

✔ Check that the ISO team assists in providing insight into the EMS and the OECD's Core Performance Elements for the benefit of other employees by means of presentations, newsletters or other ways of communication.

✔ Develop forms that can replace difficult status reporting and provide instructions on how to use them.

▶ Step 4, Initial review and Gap analysis

An ISO 14001 Initial review including the OECD's Core Performance Elements will be performed to determine the extent to which existing facility policies, standard operating procedures, environmental programmes, permits and related documents and records conform to the applicable elements of ISO 14001 and the OECD's CPE requirements.

Assess how to bridge gaps, including planning for additional resources required. Gap analysis may be carried out through self-assessment, by the ISO team or by an external consultant.

Carry out a full gap analysis including the OECD elements

References:
ISO 14001:2004
OECD CPE 1-6

Make Gap Analysis by Mgt. Representative.
Check all existing policies, procedures etc. in an Initial Review to determine what there is.

Determine the extend to which existing policies and procedures and other documents conform to the applicable elements of ISO 14001 and OECD's CPEs.
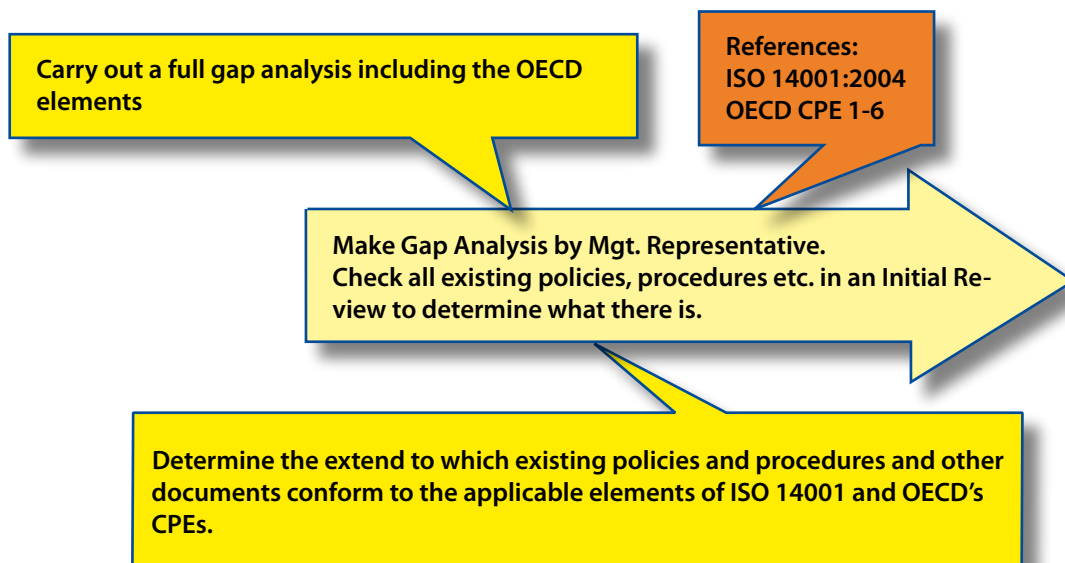
Before continuing:

✔ Check that the gap analysis has been carried out and study the outcome.

✔ With this analysis it should be possible to identify the gaps when it is compared with the ISO 14001 EMS and the OECD's CPE requirements.

✔ Check that a plan has been developed to bridge the discovered gaps.

● Make sure that the plan also contains a time schedule and that the actions are realistic and can be finished in time.

✔ Check that the results of the gap analysis and the actions to bridge the gaps have been reported to top management and that management is also committed.

✔ Check all policies, procedures, standard operating procedures, environmental programmes, permits and related documents and records conform to the applicable elements of ISO 14001 and the OECD's CPE requirements

▶ Step 5, Define environmental aspects and identify hazards

Significant environmental aspects and impacts associated with the company's unique processes, products and services must be identified.

Utilising facility flow diagrams and pre-analysis questionnaires, the implementer, or with the help of a consultant, identifies the site aspects and impacts. Consideration may be given to the potential impacts of company processes, products and services on air, land and water, the community, wildlife and vegetation.

When these aspects and impacts are defined, the level of risk involved with conformance or non-conformance has to be evaluated.

The cost benefit ratios have to be estimated as best possible.

**Define all the health hazards in and outside the premises.
Old records can help.**

**References:
ISO 14001:2004
OECD CPE 2
and 5**

**Define environmental aspects.
Identify hazards**

Define the environmental aspects caused by the processes, paying attention to any emissions to air, land and water, and noise.
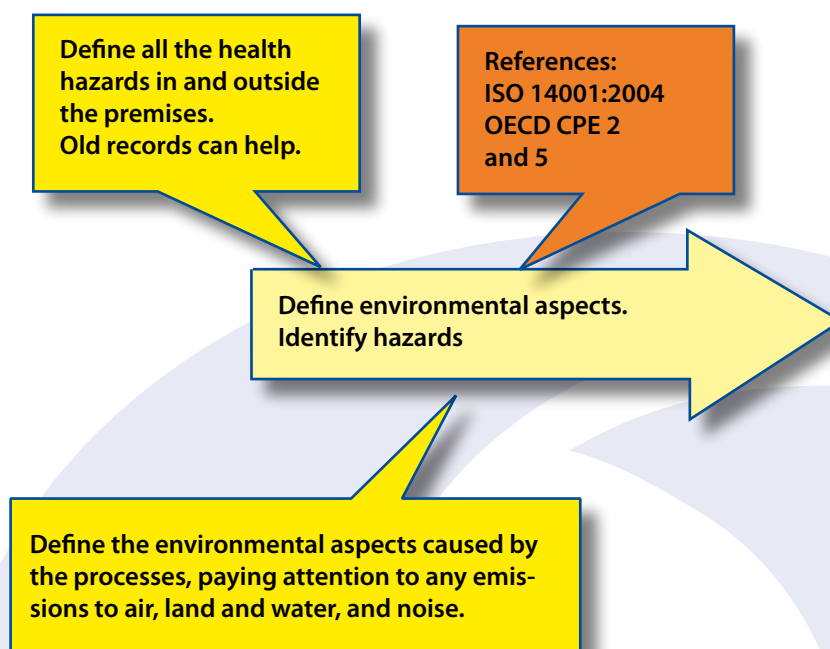
Before continuing:

✔ Check that the gap analysis has been carried out and study the outcome.

● Do not continue if that step is not finished.

✔ Make sure that the critical aspects and the associated impacts and hazards have been identified and documented for all processes. Do not miss out processes.

✔ Give sufficient attention to the OECD's CPE requirements and aim to integrate them into existing procedures.

▶ Step 6, Plan the Time Frame and communicate it

In this step the allocation of the resources for the EMS project should be defined.
Prepare a complete plan to close the gaps identified in step 5 to develop the EMS and OECD CPE aspects and impact analysis. In the plan, include activities to be performed, resources required, responsibilities and an estimated completion time for each activity.

The total time required for each phase (planning, documentation, implementation and evaluation) depends on the extent of the gaps in the existing EMS and the presence or absence of the OECD's CPE requirements.

Make use of a Gantt chart, as used for project planning and scheduling, to show what is needed and what is to come. As progress can be shown on the Gantt chart, so it may be used as a communication tool.

Document all official communication with personnel and third parties.

Develop a Gantt Chart to explain the time needed and show progress.

**References:
ISO 14001:2004
OECD CPE 1-6**

**Plan the time needed
Communicate with all the involved employees**

**Communicate on a regular basis with all the employees involved.
Keep records of the communication**
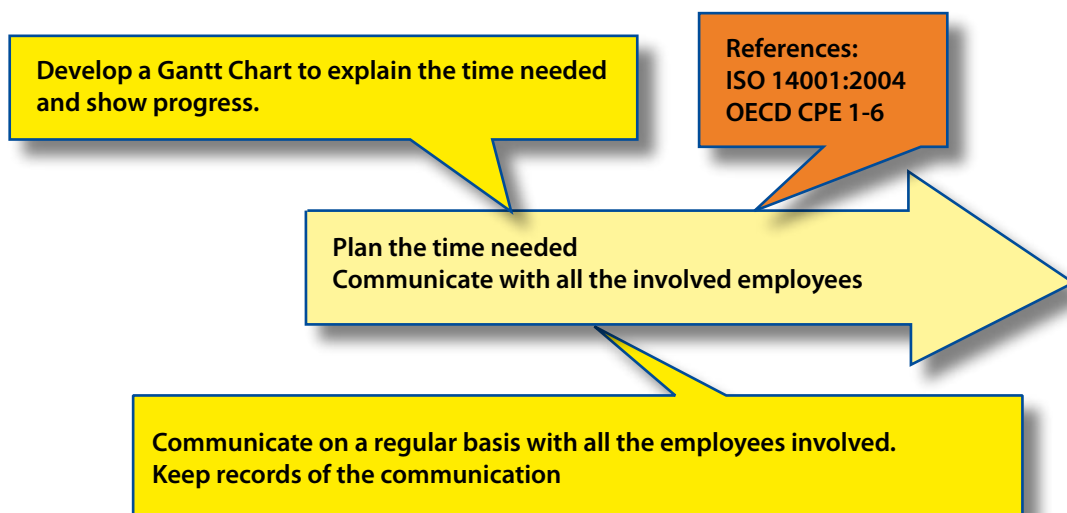
Before continuing:

✔ Check that the plan is complete, including the actions to bridge the gaps, a time schedule and the allocation of the resources such as manpower, money and time.

✔ Check that enough effort has been made to communicate the plan and the result of it to all staff. If needed provide extra information to key people and the ISO team.

▶ Step 7, Draft the EMS Manual and develop the ESM policy

The company's EMS Manual and the ESM Policy will be developed and reviewed in a meeting with the key environmental, facility programme and process owners.
The EMS Manual should provide a road map to the ESM Programme for the company.
The requirements of the OECD's CPEs should be as far as possible included into the procedures.

The manual should:

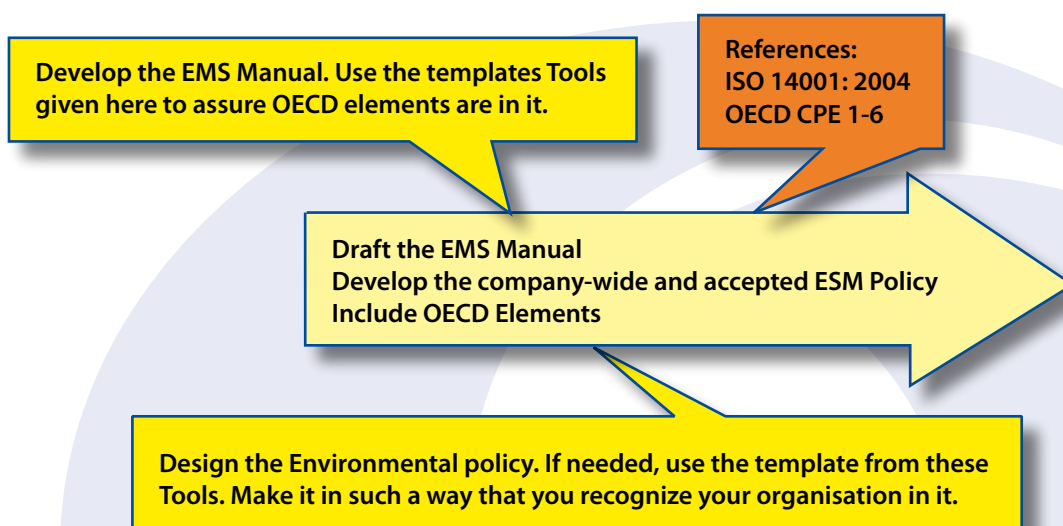- Include details of how the EMS applies to the environmental hazards, impact analysis and environmental aspects.
- Refer to documented procedures as mentioned in the standard.
- Describe the interaction between the EMS processes and the measurement and monitoring processes.
- Include all required procedures and the OECD's CPE requirements.

Draft the ESM policy for the company. Make it a strong ESM policy that fits your company. Be specific if possible and avoid vague statements. Get commitment from top management for the ESM policy.

> **Develop the EMS Manual. Use the templates Tools given here to assure OECD elements are in it.**

> **References:**
> **ISO 14001: 2004**
> **OECD CPE 1-6**

> **Draft the EMS Manual**
> **Develop the company-wide and accepted ESM Policy**
> **Include OECD Elements**

> **Design the Environmental policy. If needed, use the template from these Tools. Make it in such a way that you recognize your organisation in it.**

Before continuing:

✔ Check that there is an adequate ESM Policy developed, that top management is committed to it and that it is a strong statement.

  Do not continue without this ESM Policy statement.

✔ Check that everybody in the company has seen the ESM Policy, understands it and can repeat it in his/her own words.

✔ Check that the EMS Manual is ready. Make reference to the OECD's Core Performance Elements. Don't continue without an approved manual.

✔ Check that the requirements from the ISO standard and the OECD's CPEs are fulfilled and that reference is made to the required (12) procedures. Do not write procedures if there is no need for them.

● If commitment from top management is still not sufficient, don't continue.

Step 8, Implement the EMS

EMS documentation and infrastructure development will focus on three types of procedures:
- Management procedures for EMS and OECD CPE requirements
- Implementation of Environmental programmes
- Environmental programme implementation (operating procedures and work instructions)

Meetings with plant and process management personnel are necessary in order to capture relevant material and information needed to develop EMS documentation procedures.
Use of flow-charting is encouraged as a tool to develop a visualisation method to determine procedures that need to be documented.

Clear procedures must be established to control all documents required by the EMS and OECD CPE requirements. All documents must be:
- easily located
- legible, identifiable, dated including revision and order
- periodically reviewed, revised and approved
- available to everyone who needs them
- maintained for a specific period
- retained, if obsolete for legal or audit reasons

Identify and plan activities and procedures with proper operational control to meet objectives and targets. These procedures should be documented, specify operating criteria and be communicated to all personnel including contractors and suppliers.
Procedures must be developed and maintained to identify potential for and response to abnormal and emerging situations.

Identify Operational controls, Monitoring and Measuring needs.

Establish other System level Procedures and instructions

References:
ISO 14001:2004
OECD CPE 1-6

Identify operational and process control needs.
Establish Operational procedures and other system level procedures

Define and document views of interested third parties

Establish procedures for corrective/preventative action, Document Control and Records Management

Before continuing:

✔ Check that elements of the standards and the OECD's CPE requirements are embedded in the company.

✔ Also check presence of elements such as continual improvement, risk identification, impact analysis, communication and prevention.

✔ Check that all the needed procedures have been developed and that work instructions have been written.

✔ Check that the process "owners" [plant and Process Management Personnel] are involved in the development of the work instructions. Ensure that all the procedures are established and integrated in the processes.

✔ Check that the communication lines are maintained.

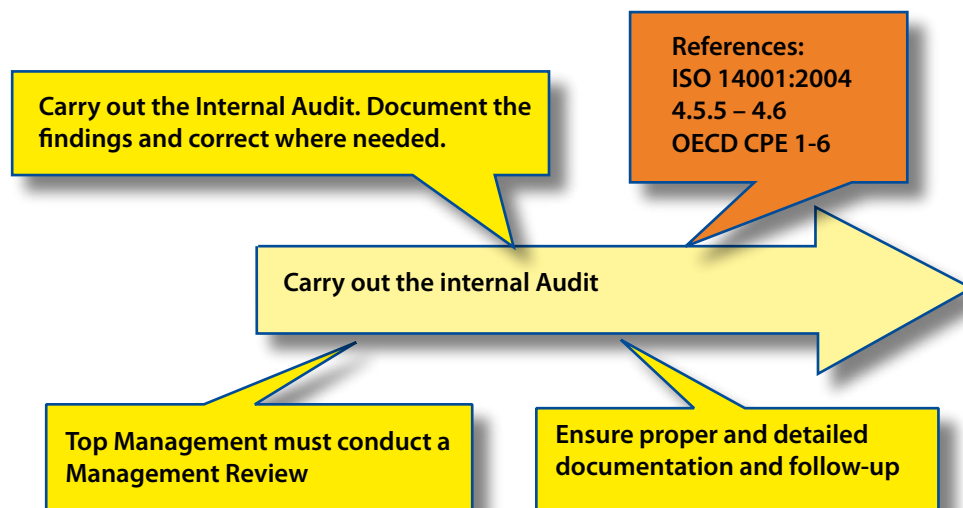## Step 9, Carry out the Internal Audit, Conduct a Management Review

During the implementation phase, some three to six months after the documentation has been written, the trained auditors should carry out one or two internal audits covering all activities for the EMS and the OECD's CPE requirements, and concerned management should take corrective action on the audit findings without delay.

Wherever required, revise the manuals, procedures and objectives.
After each internal audit, the top management should review the effectiveness of the system and provide resources for corrective actions and improvements.

Make sure that every opinion is heard. Avoid unnecessary rules and procedures that make work difficult. Concentrate on the vital few.

Top management must review the EMS including the OECD's Core Performance Elements to ensure its continuing suitability, adequacy and effectiveness. This review should be a comprehensive evaluation and should be thoroughly documented.

Carry out the Internal Audit. Document the findings and correct where needed.

**References:
ISO 14001:2004
4.5.5 – 4.6
OECD CPE 1-6**

Carry out the internal Audit

Top Management must conduct a Management Review

Ensure proper and detailed documentation and follow-up

Before continuing:

✔ Check that the responsible people have been trained for the internal auditor function. Record their training results and data.

✔ Check that internal auditors do not audit their own operational area or work area.

✔ Check that the results of the internal audits are fed back into the system and lead to improvement of the EMS including the OECD's Core Performance Elements, the processes and the documents.

✔ Check that the results of the internal audits are reviewed at top management level and that appropriate action has been taken.

✔ Check that there is a time schedule for internal audits and that it is maintained.

✔ Check that the result of the management review is functioning well and that all people involved know what is expected from them. Check on the involvement and commitment of the top management. If not sufficient, go back to step 10.

✔ Check that actions are taken and decisions from the Management Review are made. Check in time on follow-up.

✔ Check that the main focus of the Management Review is on emergency preparedness and response.

✔ Check that the decision makers are present during the Management Review.

Step 10, Pre-assessment and application for Certification, and Certification

Carry out a pre-assessment. Correct the EMS and the documentation where needed.
Re-assessment can be done with the help of an external certification body, but also by local consultants or trade association experts if available.
On satisfactory completion of the previous step, and if the company decides to obtain third party certification or wants to be recognised as Environmentally Soundly Managed, an application for certification should be made to an accredited certification body.

Carry out a formal pre-assessment. Document the findings and correct the system if needed.

**References:
ISO 14001:2004
OECD CPE 1-6**

**Pre-assessment ISO 14001 and OECD's Core Performance Elements
Application for Certification, and Certification**

Check the findings against the requirements according to ISO 14001 and OECD's CPEs. Correct procedures if needed and communicate changes

Before continuing:

✔ Carry out a pre-assessment to win trust and confidence among the people involved in the certification process.

✔ Check that actions are taken and decisions are made based on the results of the pre-assessment. Check that both ISO and OECD's CPE requirements are complete.

✔ Check that the right partner has been found to carry out the pre-assessment.

✔ Check that a certification body has been approached for the final assessment.

✔ Certification (CPE-1).

[Note: for Environmentally Sound Management (ESM) the OECD CPE-1 requires that a fully developed EMS should be certified by a recognised party, and that large licensed /authorised /permitted recovery and recycling facilities should be subject to periodic inspections and/or audits, normally on an annual basis, by a recognised independent auditor; whilst Verification and Certification for SMEs may be carried out every three years, otherwise annually. SMEs should ascertain beforehand what other positive incentives and/or relief measures are provided nationally with respect to Verification and Certification such as reduced permit fees, reduced registration fees or other financial assistance.]
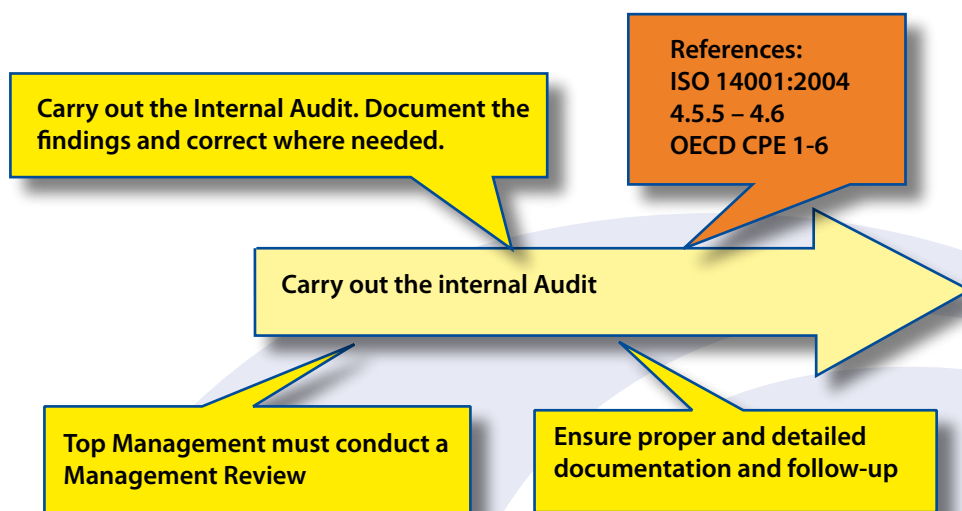
Step 11, Conduct periodic evaluations, initiate corrective and preventative actions

After certification, the company should periodically conduct internal audits to review the effectiveness of the EMS and see how it can be continually improved.
The company should evaluate periodically that the purpose and goals for which the EMS was developed are being achieved, including its continual improvement.

The company's overall systems performance should be examined to determine when and where the most effective improvements could be realised. Then objectives have to be set for those improvements and a periodic evaluation has to be conducted to monitor achievements.
Improvements could be for example the reduction of waste or energy use within a process.

Carry out the Internal Audit. Document the findings and correct where needed.

**References:
ISO 14001:2004
4.5.5 – 4.6
OECD CPE 1-6**

Carry out the internal Audit

Top Management must conduct a Management Review

Ensure proper and detailed documentation and follow-up

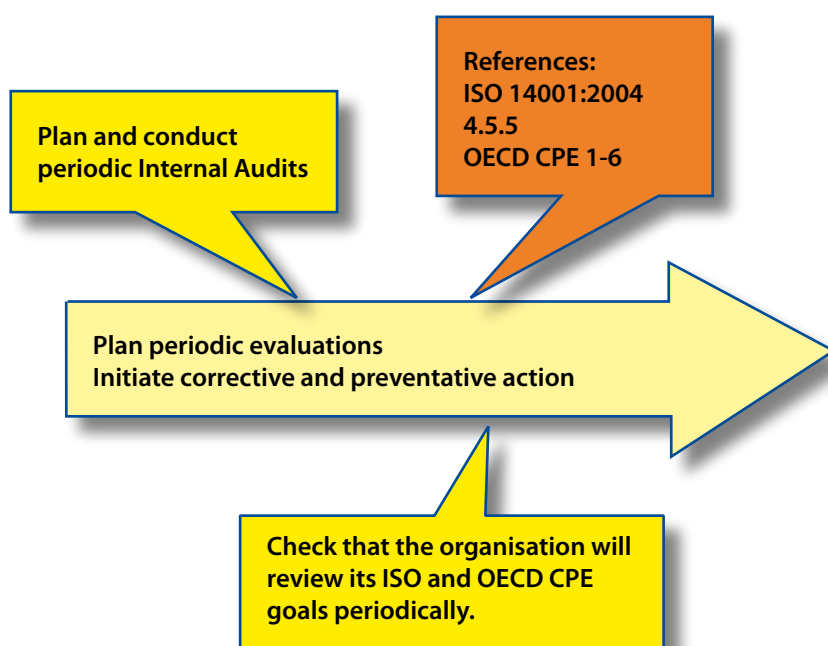Before continuing: Check that internal audits are periodically planned and conducted. Include required OECD Core Performance Elements in the audit.

✔ Check that the non-conformities from the final assessment will be resolved as soon as possible.

✔ Check that the company will review its goals and objectives on a regular basis.

✔ Check that management reviews are planned and conducted periodically.

Step 12, Evaluation and System Maintenance

Certification is not the last phase of implementation as those persons involved need to measure the effectiveness of the implementation of the EMS during the implementation process and by the conclusion of the process. Measurements should be made against the original aims and goals and the key indicators of an effective EMS as stated below. Senior management should:

- Continue to be fully committed to the EMS and own the appropriate processes.
- Recognise the EMS is designed around business processes, permits and other regulatory documentation and not around ISO 14001 or any other standard.
- Recognise the EMS goes further than the business processes because of the implementation of the OECD's Core Performance Elements.
- Ensure all staff know how to access the EMS including the OECD documentation.
- Ensure visibility of processes and that the clarity of the instructions in the EMS documentation are clear, concise, readable and understandable.
- Ensure that the people involved maintain their own documents.
- Ensure the company culture is a culture of opportunities, focused around continual improvement.
- Ensure the Environmental management representative is a key company person.
- Recognise that internal auditing adds value and is part of the continual improvement of the EMS.

Plan and conduct periodic Internal Audits

References:
ISO 14001:2004
4.5.5
OECD CPE 1-6

Plan periodic evaluations
Initiate corrective and preventative action

Check that the organisation will review its ISO and OECD CPE goals periodically.

Before continuing:

✔ Check that senior management is fully committed to the EMS and owns the appropriate processes.

✔ Check that the EMS is designed around business processes and not around ISO 14001 or any other standard.

✔ Check that all staff know how to access the EMS documentation.

✔ Check that visibility of processes and the clarity of the instructions in the EMS documentation are clear, concise, readable and understandable, and that the people involved maintain their own documents.

✔ Check that the company culture is a culture of opportunities, focused around continual improvement.

✔ Check that the environmental management representative is a key company person rather than someone on the sidelines.

✔ Check that internal auditing is seen as adding value and part of the continual improvement of the EMS.

✔ Continual improvement.

✔ Keep up with regular internal audits and Management Reviews.

✔ Ensure that the philosophy of the OECD's Core Performance Elements is present in the way the facility is operating.

EMS

Revision: ....

Uncontrolled // *Controlled* copy [*delete inappropriate status]

Revision date: ....

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Approved by: ....

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1.3	Applicable standards, regulations and recommendations		
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3.1	Issue and update		
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5.0	▶ **List of Procedures and Forms applicable to this ESM Manual**		
	Log of revisions made to this ESM Manual		

▶ 1.0 General

1.1 Policy

The management team of the company and all its employees are committed to the protection of the environment.

- We recognise the value of environmental responsibility and are committed to continual improvement, prevention of pollution and the reduction of resource consumption.
- We will comply with the relevant environmental legislation, regulations and other requirements to which we subscribe such as ISO 14001:2004 and the OECD's recommendations on Environmentally Sound Management.
- Our management team establishes the framework for setting and reviewing environmental objectives and targets through its periodic management review process.
- Our environmental policy is documented in this environmental management system manual. It is implemented, maintained and communicated to all employees.
- This environmental policy is available to the public through our web site and publications.

1.2 Purpose and Scope

This Environmental Management System Manual documents the company's Environmental Management System (EMS) to demonstrate the company's commitment to adhere to the requirements of those standards and regulations listed in the applicable standards and regulations section of this manual.

This EMS manual applies to all functions within the company.

The company's EMS provides a mechanism for environmental management throughout all areas and departments.

The environmental management system is designed to cover environmental aspects that a facility can control and directly manage, and those it does not control or directly manage but over which it can be expected to have an influence upon.

1.3 Applicable standards, regulations and recommendations

ISO 14001:2004 Environmental management system – specification with guidance for use
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

▶ 2.0 Company information

Company name
Address
Phone
Fax
E-mail
Web site
Contact person

▶ 3.0 Terms and Definitions

Top management	Management team led by the Managing Director of the company. This management team has the executive responsibility for performance of the business, the EMS and/or the QMS.
Management representative	The Managing Director has delegated a part of his operating responsibility with regards to the Environmental Management System to the Management Representative. The Managing Director remains responsible for all operations and actions.
Emergency Co-ordinator	For handling hazardous wastes and whose responsibilities and authority are laid down in the procedure.
EMS	The Environmental Management System.
QMS	The Quality Management System.
ISO team	Group of employees at different levels, implementing the EMS and assessing risks and liabilities, to optimise the effectiveness of the EMS.
EMP	Environmental Management Programme.
OECD	Organisation for Economic Co-operation and Development Core Performance Elements of the OECD Recommendation

3.1 Issue and update

The control of this manual is in accordance with the document control procedure.

This manual is available in all departments and in all process operating areas. [Note: If the manual is made available "on screen" in electronic data format in all departments and in all process operating areas, the onscreen manual would be the controlled copy and all hard copies would not be controlled documents. The status is at the top of each document, wording such as 'uncontrolled copy if printed' may be used in the case of an "on screen" system, in which case before using the printed copy, and the revision number and date must be checked with the electronic data version to ensure that the hard copy is not obsolete].

The Management Representative or designee following approval by the Managing Director will issue amendments to this manual.

▶ 4.0 EMS requirements

4.1 General and OECD CPE requirements

The company established its Environmental Management System (EMS) following the requirements and structure of the ISO 14001-2004 International Standard and the OECD Recommendation on Environmentally Sound Management of waste

The company supports the basic performance requirements for the recycling industry as expressed by the Core Performance Elements in the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. The company contributes to and maintains its EMS in the manner that demonstrates the commitment to continual environmental improvement and Environmentally Sound Management

The identification of the company's environmental aspects and impacts is based on its activities as well as its services provided between various departments and functions. Through established methods to identify environmental aspects, the company's environmental staff evaluated and ranked significant aspects. The EMS has been established to provide an overall systematic approach to Environmentally Sound Management through linking the company's compliance, pollution prevention and other programmes.

These programmes will be reviewed regularly to ensure continual improvement through the EMS. The company has established and maintains its EMS, through development of procedures, work instructions, and forms. EMS documentation links have been established with its policies and procedures to demonstrate conformance to the Recommendations of the OECD and the ISO 14001:2004 requirements.

4.2 Environmental policy

The company's environmental policy (the policy) is endorsed by the Managing Director.
The policy covers all activities at the company. The policy includes a commitment to continual improvement and prevention of pollution, as well as a commitment to meet or exceed relevant environmental legislation, regulations and the Recommendations of the OECD for the Environmentally Sound Management of waste.
The policy will be reviewed annually by top management, communicated to all employees and made available to the public in accordance with the Internal and External Communication procedure.

Reference material

ISO 14001:2004 clause 4.2

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures

Procedure for internal and external communication (4.4.3)

Core Performance Element CPE-1 and 3

4.3 Planning

■ 4.3.1 Environmental aspects

The company's ISO team lead by the Management Representative identifies the environmental aspects, which the facility controls and over which it may be expected to have an influence, and determines which of those aspects are significant.

Discussions regarding significance are recorded in ISO team meeting minutes in the Environmental Aspects Listing. The company's Environmental Aspects Listing contains significant aspects that can have a significant impact/detrimental effect on the environment, and the list contains the beneficial aspects the company's services have on the environment.

Aspects and impacts of the company are continually kept up to date through audits, management reviews and departmental evaluations regarding the changes within operations.
These aspects are reviewed at least semi-annually by the ISO team or when there is a new or changed process or activity at the facility.

Significant aspects that can have an impact on the environment includes the following:
- Emissions to Air (e.g. significant air pollution / lack of pollution control)
- Emissions to Water (e.g. significant water pollution/ lack of pollution control)
- Emissions to Land (e.g. significant land contamination / unsound waste disposal)
- Resource depletion (e.g. unsustainable use of resources)

The Management Representative maintains ISO team minutes and other records.

Reference material
ISO 14001:2004 clause 4.3
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.
List of Environmental Aspects

Applicable procedures
Procedure to identify environmental aspects (4.3.1)
Procedure emergency preparedness and response (4.4.7)
Core Performance Element CPE-1, 3, 5 and 6.

■ 4.3.2 Legal and other requirements

The Company has established an environmental procedure for the purpose of identifying, accessing and communicating legal and other requirements that are applicable to the facility. Additional information is also available through legal publications.

Local regulations are identified, accessed and communicated by the Management Representative.

At least annually the Management Representative will review the most current International, national, regional, provincial, state and local legal and other requirements as applicable to the company.

The company's staff is assigned the responsibility to ensure compliance and validity of certifications and permits/ licences related to such requirements that they oversee for the company.

The company's list of legal and other requirements are filed with each applicable facility / operational unit, e.g., environment, health and safety. Legal requirements are also listed with each operational unit of the company. Regulatory compliance within each department is the responsibility of the department manager or supervisor.

Reference materials
Legal and other requirements
Listing of Legal and other requirements
ISO 14001:2004 clause 4.3.2
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Procedure to identify applicable legal and other requirements (4.3.2)
Procedure to identify environmental aspects (4.3.1)
Core Performance Element CPE-1,3 and 6

■ *4.3.3 Objectives, targets and programmes*
Objectives and targets are set in order to improve environmental performance at all relevant levels and functions of the company.
Objectives and targets shall also be developed that demonstrate continual improvement within the company. The company has established and maintains documented environmental objectives and targets at each relevant function and level within the company in a Business Performance Matrix.

Consideration of the following criteria is used in the development of objectives and targets for the company.

- Aspects associated with significant impacts
- Beneficial aspects that increase service to the (Installation) and reduce risk
- Legal & other requirements
- Technological options and Best Available Technology
- Financial, operational and business requirements
- Environmentally Sound Management
- Views of interested parties

In order to be comprehensive, the audit procedure covers the audit scope, frequency and methodologies, as well as the responsibilities and requirements for conducting audits and reporting the results.

Reference materials
Business performance matrix / Balanced Scorecard (BSC)
ISO 14001:2004 clause 4.3.3

Listing of Legal and other requirements
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Core Performance Element CPE-1 to 6

4.4 Implementation and operation

■ 4.4.1 Resources, roles, responsibility and authority
Environmental management system roles, responsibilities and authorities are defined at relevant functions and levels within the company in the Job Description and the Company Organisational Diagrams in fulfilling the environmental policy and the EMS.
The Management Team jointly provides the resources essential to the implementation and control of the environmental management system, including training, human resources, speciality services, and financial resources, technical and informational services.
In order to fulfil the EMS requirements and to ensure continual improvement in the company's environmental, health and safety performance, the Managing Director has appointed a Management Representative (MR) who will be the liaison between the Directors and the departments. The MR provides information to and receives information from each relevant level and function within the company in order to ensure continual improvement of the EMS. The MR has sufficient authority, competence and resources to carry out his/her duties. The company organizational diagram clearly defines roles and responsibilities, and the company's mission, as well as the role of the MR.

The Management Representative has primary responsibility for establishing, operating and maintaining the EMS. The ISO team provides routine EMS support and reports directly to the Management Representative.

Reference material
Job Descriptions
Company Organisational Diagrams
ISO 14001:2004 clause 4.4.1
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Core Performance Element CPE-1 and 4

■ 4.4.2 Competence, training and awareness
The company identifies, plans, monitors and records training needs for personnel whose work may create a significant impact upon the environment.

The company has an environmental procedure to train employees at each relevant function and level so they are aware of the environmental policy, significant environmental aspects, their roles and responsibilities in achieving conformance with the policy and procedures, and with the require-

ments of the environmental management system.

The training co-ordinator is responsible for maintaining employee training records. Appropriate records are monitored and reviewed on a scheduled basis.
The employee's supervisor determines competency.

An environmental training plan is defined in the Training Matrix to ensure that all company personnel have received the required level of training that provides the company with professional staff, whose responsibilities are to ensure environmental, health and safety regulatory compliance, and to minimise the risk of harm to the environment, and human health, including that of employees.

Reference material
Employee Training Records
ISO 14001:2004 clause 4.4.2
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Procedure competence, training and awareness (4.4.2)
Core Performance Element CPE-1 and 4

■ *4.4.3 Communication*
The company has established and will maintain a procedure for internal and external communications regarding environmental aspects and the EMS.

The procedure describes:
  * Methods adopted for communicating within the company to all levels and functions.
  * Effective communication with other departments within the company.
  * Reference to the company's policy of external communication and the appropriate means to communicate the company's significant aspects to the external interested parties.
  * Upon request, and taking into account business confidentiality and the protection of intellectual property rights, reliable information on the activities of the facility that may impact the environment or the health and safety of personnel will be made available to the public in a reliable and timely manner.

A uniform communications process has been developed to increase the effectiveness of the company's internal communication regarding environmental issues in accordance with the company's environmental policy and the EMS.

Reference material
Uniform communication process instruction
ISO 14001:2004 clause 4.4.3
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Procedure for internal and external communication (4.4.3)
Core Performance Element CPE-1 and 3

■ *4.4.4 Documentation*
This manual identifies all documents relevant to the EMS. A copy of EMS documents, other than visual aids and records, can be obtained from the Management Representative or designee.

The company's EMS documentation has been developed using the following levels:

Level	Description
I	EMS Manual describing conformance with the ISO 14001-2004 EMS standard and the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.
II	EMS procedures based on the ISO 14001-2004 standard and the company's established procedures on various EMS elements.
III	Work Instructions developed by each facility or department. These work instructions are based on the needs of each unit's responsibility to the company department they service.
IV	Forms for EMS reports, lists and requirements.

Reference material
ISO 14001:2004 clause 4.4.4
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Core Performance Element CPE-1, 3 and 4

■ *4.4.5 Control of documents*
The company has established an environmental procedure for controlling all documents related to the environmental system.

This procedure describes where documents can be located and how and when they are reviewed. The procedure ensures that current versions are available and that obsolete documents are promptly removed from use or are suitably identified.
Controlled documents are obtainable on screen.

Reference material
ISO 14001:2004 clause 4.4.5
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures

Procedure control of documents (4.4.5)

Core Performance Element CPE-1 to 6.

■ 4.4.6 Operational control

Documented procedures have been established to demonstrate the ability of the staff to cover situations that have the potential to create an environmental impact.

The ISO team is responsible for identifying operations and activities associated with significant environmental aspects that require operational controls in procedures, work practices or environmental management programmes.

These documents define the mechanisms for the establishment, implementation and maintenance of the EMS and ensure that the system is maintained in accordance with the environmental policy and objectives and targets, and is communicated to suppliers and contractors.

System procedures: Cover the management and control of both the EMS and the principal environmental aspects, which the system manages. These procedures are company wide in their application.

Work instructions: Cover the environmental control of specific operational activities and are usually activities specific in their application.

The company will maintain control over operations to minimize risk through:

- Identifying specified conditions that have the potential for environmental, health and safety incidents and the controls required to minimize risk
- Communication and training of personnel to encourage and assign responsibility in following procedures/ work instructions
- Training and communication of personnel to make them aware of the environmental, health and safety consequences of deviating from the company's policy, procedures and work instructions within their departments.

The facility should have an adequate plan for closure and after-care. [BIR Note – an after-care plan is not necessary for every recycling company]

Closure plans should be updated periodically and financial guarantees, if required or appropriate, should ensure that the necessary measures are undertaken upon definite cessation of activities to prevent any environmental damage and return the site of operation to a satisfactory state, as required by applicable laws and regulations.

Reference material

ISO 14001:2004 clause 4.4.6

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Closure and after-care plan. [BIR Note – an after-care plan is not necessary for every recycling company]

Applicable procedures

Procedure operational control (4.4.6)

Procedure control of documents (4.4.5)

Core Performance Element CPE-1, 2, 3, 5 and 6

■ 4.4.7 Emergency preparedness and response

The company has established an environmental procedure and method to identify potential for and response to accidents and emergency situations, and for preventing and mitigating the environmental impacts that may be associated with them. Emergency methods are reviewed by the ISO team on an annual basis and evaluated after the occurrence of accidents or emergency situations.

The company has appointed an Emergency Co-ordinator for handling hazardous wastes and whose responsibilities and authority are laid down in the procedure.

The company has a Contingency Plan covering both short-term and long-term remedial activities that has been established by the ISO team and maintained by each department or facility manager. The designated department shall maintain the overall procedure for Emergency Preparedness and Response.

The Management Representative will meet with appropriate personnel and discuss any recommended changes to the procedures if identified during an emergency situation.

The company has established:

- Potential emergency situations and possible environmental, health and safety impacts
- Responsibilities of departments during emergency situations
- Responses/ actions required to prevent and mitigate environmental, health and safety impacts

The relevant authority and/or external auditor will periodically review any emergency plan.

Reference material

ISO 14001:2004 clause 4.4.7

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Contingency Plan

Applicable procedures

Procedure emergency preparedness and response (4.4.7)

Procedure control of documents (4.4.5)

Core Performance Element CPE-1 and 5

4.5 Checking

■ 4.5.1 Monitoring and measurement

The company has established an environmental procedure to monitor and measure the key characteristics of its operations and activities that can have a significant impact on the environment.

This procedure includes calibration and maintenance requirements and ensures that records will be retained.

The company has established an Environmental Regulatory Compliance Programme.
The procedure outlines the requirements of the programme to periodically review regulatory compliance and report results to management on a yearly basis.

The staff will communicate all changes in regulations to the management to ensure the facilities are at all times in compliance with regulations regarding the environment, and health and safety.

The key characteristics of activities and services that can have a significant environmental impact are regularly measured and monitored. Management review meetings shall include review of the key characteristics of the EMS to monitor the adequacy of its environmental management programme. The monitoring and measuring of the environmental management programme and the objectives and targets included in each programme will demonstrate the company's commitment to continual improvement and prevention of pollution.

Reference material
ISO 14001:2004 clause 4.5.1
Environmental Regulatory Compliance Programme
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Procedure control of records (4.5.4)
Procedure monitoring and measurement (4.5.1)
Core Performance Element CPE-1 and 3

■ 4.5.2 Evaluation of compliance

The company has a procedure implemented and maintained for periodically evaluating compliance with the applicable legal requirements.

The company has an environmental procedure for defining compliance with other requirements to which it subscribes.

Reference material

ISO 14001:2004 clause 4.5.2

Facility incident report

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures

Procedure monitoring and measurement (4.5.1)

Procedure nonconformity, corrective action and preventative action (4.5.3)

Procedure evaluation of compliance (4.5.2)

Core Performance Element CPE-1, 2 and 3

■ *4.5.3 Nonconformity, corrective action and preventative action*

The Company has a procedure for dealing with the actual and potential nonconformities and for taking corrective action and preventative action. This procedure defines requirements for:

- Identifying and correcting nonconformities and taking actions to mitigate their environmental impacts.
- Investigating nonconformities, determining their causes and taking actions in order to avoid their recurrence.
- Evaluating the need for actions to prevent nonconformities.
- Recording the results of actions taken.
- Reviewing the effectiveness of corrective and preventative actions
- Identification, maintenance and disposal of environmental records.

Reference material

ISO 14001:2004 clause 4.5.3

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures

Procedure nonconformity, corrective action and preventative action (4.5.3).

Core Performance Element CPE-1, 2 and 3

■ *4.5.4 Control of records*

The company has a procedure for the control of records to demonstrate conformity to the requirements of its EMS, the ISO 14001-2004 standard and the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Within the procedure, the identification, storage, protection, retrieval, retention and disposal of records are ensured.

All environmental, and health and safety records are handled in accordance with the procedure. Records retention period is determined through legal and other requirements in accordance with regulatory and other procedures.

According to the procedure established the company may determine that records such as internal audit, non-conformance, environmental incident report, management review meeting minutes, or other records dealing with issues directly related to the EMS will be retained in the company and copies distributed to those facilities / operating units where appropriate. Also, the retention and storage of records related to significant aspects and objectives and targets are also maintained according to procedure. Training records are maintained within the applicable department.

Reference material
ISO 14001:2004 clause 4.5.4
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Procedure control of records (4.5.4)
Core Performance Element CPE-1, 2, 3 and 4

■ *4.5.5 Internal Audit*
The company plans and conducts internal audits of the Environmental Management System at regular intervals.

The purpose of these internal audits is to determine whether the Environmental Management System conforms to planned arrangements for environmental management, including the requirements of ISO 14001: 2004 and the OECD's Core Performance Elements 1 to 6, and has been properly implemented and maintained.

The results of the Internal Audit are reported to management to inform them about compliance and conformity and the areas that need updating or improvement in the Environmental Management System.

Reference material
ISO 14001:2004 clause 4.5.5
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Procedure internal audit (4.5.5)
Core Performance Element CPE-1, 2, 3 and 4

4.6 Management review

The Management Team and the Management Representative review all elements of the EMS annually to ensure its continuing suitability, adequacy and effectiveness.

The management review shall be documented and will address the possible need for change within the

company's environmental policy, objectives and targets, and other elements of the EMS.

Meeting minutes record these reviews and are kept by the Management Representative or designee.

Reference material
Records of Management Review
ISO 14001:2004 clause 4.6
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Applicable procedures
Procedure control of documents (4.4.5)
Core Performance Element CPE-1, 2, 3 and 4

▶ 5. List of procedures and forms applicable to this EMS manual

Procedures
Procedure to identify environmental aspects (4.3.1) of the company's activities, products and services that can have significant impact on the environment.

Procedure to identify applicable legal and other requirements (4.3.2) and to determine how these requirements apply to its environmental aspects.

Procedure competence, training and awareness (4.4.2) to make employees aware of the importance of conformity with the policy, the significant environmental aspects of their roles and responsibilities and the potential consequences.

Procedure for internal and external communication (4.4.3) across the various levels within the company and receiving, documenting and responding to relevant communication from external parties.

Procedure control of documents (4.4.5) to approve documents, review and update them, and to ensure that the current revision status is identified and available. Also to ensure that documents remain legible and identifiable.

Procedure operational control (4.4.6) to control situations where loss of control could lead to deviation from the policy, objectives and targets. This procedure should also cover the identification of significant environmental aspects of goods and services used and communicate applicable procedures and requirements to suppliers and contractors.

Procedure emergency preparedness and response (4.4.7) to identify potential emergency situations and potential accidents.

Procedure monitoring and measurement (4.5.1) to monitor on a regular basis the key characteristics of the company's operations.

Procedure evaluation of compliance (4.5.2) for periodically evaluating compliance with the applicable legal requirements.

Procedure nonconformity, corrective action and preventative action (4.5.3) for dealing with nonconformities and for taking corrective and preventative actions.

Procedure control of records (4.5.4) for the identification, storage, protection, retrieval, retention and disposal of records.

Procedure internal audit (4.5.5) that addresses the responsibilities and requirements for planning and conducting audits and determines audit scope and criteria.

<u>Forms</u>
List of Environmental Aspects
Listing of Legal and other requirements
Business performance matrix / Balanced Scorecard (BSC)
Job Descriptions
Company Organisational Diagrams
Employee Training Records
Uniform communication process instruction
Closure and after-care plan
Contingency Plan
Facility incident report
Record of Management Review
Operational Control Verification Form
Audit Report Form
Audit Notes Form
Corrective Action Request Form
Non-Conformance Report Form

EMS Procedure nr.

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Procedure to identify environmental aspects (4.3.1)

Purpose:

This procedure covers activities, services and products that the company can control and over which it can be expected to have an influence. Significant environmental aspects identified during this process will be considered in establishing environmental objectives and targets for the company.

The company will perform a baseline evaluation of current and past products and services. Data, which may be used to identify and evaluate environmental aspects, may include past contamination and damage reports, compliance audits, incident investigation reports, permits, chemical and waste inventories etc.

The baseline evaluation will focus on those activities, services and products over which the company exerts direct control. Examples of categories of aspects to be evaluated include:
- Emissions to Air
- Emissions to Land
- Emissions to Water (water discharge / surface water discharge)
- Storage of hazardous wastes (e.g. Used Lead Acid Batteries, Used Oil)
- Waste management (Waste for final disposal)
- Natural resources used (water used, energy used)
- Environmental noise
- Historical contamination
- Other local environmental and community issues

This process will consider actual and potential environmental aspects associated with:
- Normal operating conditions
- Shut-down and start-up conditions
- Realistically foreseeable or emergency situations

Potential environmental aspects that are not under the company's direct control, but over which the company can reasonably be expected to have influence, will be evaluated at such time as management deems appropriate.

The company's environmental aspects are re-evaluated, as needed, considering changes in evaluation methodology or significant changes in the facility's process or products. As a minimum, the evaluation is updated prior to the introduction of a new process or substantially different raw material into the company.

Scope:

This procedure covers the methods for identifying environmental aspects and significant impacts.

Responsibility:

The Management Representative is responsible for overseeing the application of this procedure and involving other employees as appropriate.

Definitions:

Environmental aspects as defined in ISO 14001:2004 are components of the company's activities, products and services that are likely to interact with the environment.

Environmental impacts as defined in ISO 14001:2004 are any changes to the environment, whether adverse or beneficial, wholly or partially resulting from the activities, products and services of the company.

Core Performance Elements are requirements as defined in the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Procedure:

1. The Management Representative is responsible for overseeing the application of the procedure and involving other employees as appropriate. Other employees may include representatives from environmental, health and safety, engineering, line management, maintenance, facility management, product design and development, product realisation and other functions, as appropriate.

2. The Managing Director is responsible for making these individuals available to participate in the environmental aspects evaluation, which is performed according to the schedule established by the Management Representative. Environmental aspects are evaluated using the categories and the types of data elements described in the listing of environmental aspects (or matrix). The management representative is responsible for making relevant data available to the individuals performing the aspects evaluation.

3. Identified environmental aspects are evaluated for actual and potential environmental impact using a risk-based methodology. Each impact is categorised as significant or not significant and assigned a numerical risk rating. Aspects, which are determined to have an associated actual or potentially significant environmental impact, are considered significant environmental aspects.

4. The results of the aspects evaluation process are recorded using the environmental aspects matrix.

   Aspects are prioritised according to their numerical risk rating generated from the environmental aspects matrix.

   The management representative is responsible for working with plant management to ensure that identified significant environmental aspects are considered in setting environmental objectives and targets.

5. The results of the most recent environmental aspect/impact evaluation are reviewed as part of the management review process. Based on this review, the company's management determines the need to update the summary of environmental aspects, impacts and risks, and acts accordingly.

6. Every 30 days or sooner if needed, the Management representative will check with the involved individuals on the status of the actions decided and then report back to the Managing Director.

References:

ISO 14001: 2004

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1, 3, 5 and 6

Relevant Guidelines for specific wastes

Guidelines adopted under the UN-EP Basel Convention:

- Technical Guidelines on the Environmentally Sound Management of Waste Lead Acid Batteries
- Technical Guidelines on the Environmentally Sound Management of the Full and Partial Dismantling of Ships
- General Technical Guidelines for the Environmentally Sound Management of Wastes Consisting of, Containing or Contaminated with Persistent Organic Pollutants (POPs)
- Technical Guidelines for the Environmentally Sound Management of Wastes Consisting of, Containing or Contaminated with Polychlorinated Biphenyls (PCBs), Polychlorinated Terphenyls (PCTs) or Polybrominated Biphenyls (PBBs)
- Technical Guidelines on the Environmentally Sound Recycling/Reclamation of Metals and Metal Compounds (R4)

Guidelines adopted by the OECD:

- Technical guidance for the environmentally sound management of specific waste streams: Used and scrap personal computers (ENV/EPOC/WGWPR(2001)3/FINAL).

Guidelines adopted by the International Maritime Organisation (IMO) Guidelines on ship recycling

Guidelines adopted by the International Labour Organisation (ILO): Safety and health in shipbreaking: guidelines for Asian countries and Turkey

List of Environmental aspects
Summary of environmental aspects

EMS Procedure nr.

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Procedure to identify applicable legal and other requirements (4.3.2)

Purpose:
This procedure outlines the process used to access and evaluate laws, regulations and internal company requirements that apply to environmental aspects of its mission, activities, products and services.

Scope:
Environmental Management System legal requirements encompass all the constraints imposed on the company to control its environmental aspects and operations. These constraints include international and national laws, regulations, environmental permits, registrations and local requirements.

Addition constraints comprise internal company procedural requirements pertaining to environmental aspects such as instructions, directives, manuals and policy decisions.

This procedure focuses on identifying applicable legal and other requirements.

Responsibilities:
The Operations manager is responsible for identifying and analysing environmental regulations and other legal requirements relevant to the operation and the activities or services.
The Operations Manager is responsible for communicating this information to the management, staff and the Management Representative.

Definitions:
Legal requirements include those issued by state, provincial and local authorities.

Other requirements include those issued by the company such as internal procedures, work instructions, quality requirements and those from other authorities that the company has agreed to comply with.

Core Performance Elements are requirements as defined in the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Procedure:
Each Operations Manager is responsible for tracking applicable laws and regulations, and identifying those related to the company's activities, processes and services within their programme area. The Operations Managers are also responsible for evaluating the potential impacts of these laws and regulations on the company and its activities, processes or services.

The Operations Managers employ a variety of techniques and information sources to track, identify and evaluate applicable laws and regulations. These include, but are not limited to: commercial services/da-

tabases, information provided by trade associations, communications with international and national regulatory agencies, environmental meetings, and periodic environmental training.

The Operations Managers monitor these information sources on a regular basis to ensure that new issues are identified on a timely basis.

As necessary, other resources (such as consultants and attorneys) may be called upon to assist the Operations Managers in evaluating applicable laws and regulations or in developing programmes in response to those laws and regulations. Where other resources are used in this manner, the Management Representative will coordinate such efforts.

The Operations Managers disseminate information on applicable laws and regulations to appropriate personnel. The determination of who within the company must be informed and the method for providing this information is at the discretion of the Operations Manager, based on the circumstances of the case.

A breakdown of the regulatory requirements that apply to specific Activities and Sites are found in the "Legal and other requirements matrix". This matrix or listing is to be reviewed and updated by the Operations Managers and/or the Managing Director at least once a year.

The Operations Manager compiles and maintains copies of significant applicable environmental laws and regulations. The Operations Manager ensures that ready access is available from other sources, such as those listed above.

References:
ISO 14001: 2004
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1, 3 and 6
Listing of legal and other requirements

EMS Procedure nr.

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Procedure competence, training and awareness (4.4.2)

Purpose:
The purpose of this procedure is to identify the training needs for all the company's personnel whose work may create a significant impact upon the environment and to ensure that those training needs have been met.

Scope:
This procedure applies to all relevant levels of the company.

Definitions:
Environmental aspect – Element of a company's activities, products or services that can interact with the environment. An environmental aspect signifies the potential for an environmental impact.

Environmental impact – Any change to the environment, or to the health and safety of people, whether adverse or beneficial, wholly or partially resulting from a company's activities, products or services.

Significant environmental aspect – An environmental aspect that has or can have a significant environmental impact.

Responsibility:
The Management Representative shall select the minimum EMS training requirements that are necessary due to the operation's potential environmental aspects or impacts. The Management Representative may select a variety of training methods to fulfil this requirement.

Training methods include: "training on the job"; "reading training"; and "training meetings".

Awareness training
Each company employee shall receive training at least with an overview of relevant environmental, health and safety aspects.

The training shall cover the topics outlined in the EMS documentation.

This training will be given to all employees and all new employees as part of their initial orientation, introduction to the company.

Competence training
Each employee involved in operating a process and before operating a new assigned process, which can cause significant environmental impacts, shall be trained in an overview of the process and in the operating procedures to ensure competency on the basis of education, training and/or experience. This training will include on the job training.

Hazardous waste training

All personnel involved in the management of waste and materials, in particular hazardous waste and materials, shall be capable and adequately trained to be able to properly handle the materials, equipment and processes, eliminate risk situations, control releases and carry out safety and emergency procedures.

Procedure:

Each Operations Manager is responsible for tracking applicable laws and regulations, and identifying those related to the company's activities, processes and services within their programme area. The Operations Managers are also responsible for evaluating the potential impacts of these laws and regulations on the company and its activities, processes or services.

The Operations Managers employ a variety of techniques and information sources to track, identify and evaluate applicable laws and regulations. These include, but are not limited to: commercial services/databases, information provided by trade associations, communications with international and national regulatory agencies, environmental meetings, and periodic environmental training.

The Operations Managers monitor these information sources on a regular basis to ensure that new issues are identified on a timely basis.

As necessary, other resources (such as consultants and attorneys) may be called upon to assist the Operations Managers in evaluating applicable laws and regulations or in developing programmes in response to those laws and regulations. Where other resources are used in this manner, the Management Representative will coordinate such efforts.

The Operations Managers disseminate information on applicable laws and regulations to appropriate personnel. The determination of who within the company must be informed and the method for providing this information is at the discretion of the Operations Manager, based on the circumstances of the case.

A breakdown of the regulatory requirements that apply to specific Activities and Sites are found in the "Legal and other requirements matrix". This matrix or listing is to be reviewed and updated by the Operations Managers and/or the Managing Director at least once a year.

The Operations Manager compiles and maintains copies of significant applicable environmental laws and regulations. The Operations Manager ensures that ready access is available from other sources, such as those listed above.

References:

ISO 14001: 2004
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Element CPE-1 and 4.
Employee training records

Essential elements of an Employee Training Record:

Employee Name: ID (if applicable):

Employee hire date / Promotion date:

Employee Position (job title):

Job summary (concise):

Job Responsibilities / Activities in detail and Individual responsibilities:

Skills required for Position:

Qualifications/ skills attained:

Developmental goals:

Training Course attended (Course provider - company or trainers name, Course Title, Date, and Place, Skills attained - If available attach copy of Certificate gained)

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Procedure for Internal and External Communication (4.4.3)

Purpose:

This procedure describes the process for communication and response to internal and external interested parties regarding the company's Environmental Management System and activities related to environmental aspects.

Scope:

This procedure applies to all internal and external environmental communications relating to the company's environmental aspects, significant environmental aspects and the environmental management system.

This procedure covers the method for addressing communications as required by ISO 14001:2004 and the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Definitions:

Environmental aspect – Element of a company's activities, products or services that can interact with the environment. An environmental aspect signifies the potential for an environmental impact.

Environmental impact – Any change to the environment, or to the health and safety of people, whether adverse or beneficial, wholly or partially resulting from a company's activities, products or services.

Responsibility:

All communication about environmental matters is co-ordinated by the Management Representative. Without the needed authority, employees are not allowed to address this matter.

The Management Representative is responsible for ensuring that this procedure is communicated to all employees. The Management Representative is responsible for maintaining this procedure.

Procedure:

The following describes the procedure for all communications both internal and external dealing with environmental and health issues.

Issues that may be communicated are: audit finding, waste generation, accident information e.g. spills, and risk assessment, control information, etc

Internal communications

Information regarding the company's environmental and health aspects, the Environmental Management System (EMS) and its policies will be posted in a timely manner.

Waste generation statistics will be posted quarterly.

Environmental programme status and other environmental updates will be posted periodically on the "Environmental News" bulletin board.

Environmental and health information will be communicated by utilising a variety of media such as:
- Bulletin board notices
- Communication Meetings
- Computer Network
- Employee handbooks
- Posters / banners
- E-Mail distribution

External Communications

Concerns of internal and external interested parties about the company's environmental management system, significant environmental impacts or aspects will be handled by the Management Representative who:
- Receives, documents, and responds to all external communications, and records them in an external document database.
- Communicates the company's significant environmental aspects externally case by case as requested.
- Reports all external inquiries and responses to the Managing Director at scheduled meetings.

References:

ISO 14001:2004

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1 and 3.

External document file or database

EMS Procedure nr.

Revision: ....

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Procedure control of documents (4.4.5)

Purpose:
The purpose of this procedure is to establish a process for the review, distribution, and implementation of documents that describe and control the EMS.

Scope:
This procedure applies to all elements of ISO 14001:2004, the Environmental Management System and the Core Performance Elements as defined in the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Responsibility:
The Management Representative is responsible for maintaining the ISO 14001 related EMS records including the EMS audit results, management review reports, corrective action requests and the communication log.

Operations managers are responsible for periodically reviewing, updating (if required) and maintaining environmental records pertinent to their responsibilities.

Procedure:
The Management Representative will maintain all documents.
The Management representative will retain the master documents and have sole access for making changes.

Submission of the initial draft of documents for comment will be by the affected departments within the company. All comments received will be incorporated into the document or discussed until a resolution is reached.

The final draft will be submitted to the Managing Director for either review, revision or approval by signing and dating.

For Electronic Document Control Systems the final signed and dated document will be converted to a PDF-file, and placed on the LAN (local area network) for distribution.

Documents will be reviewed annually for updates or as regulations or conditions change. This same process will be utilised for document revisions. The revision number will be indicated on the document as well as the document index.

Document retention will be determined by the Management Representative but shall be based on legal requirements.

Documents, permits and other regulatory instruments' retention times are listed in the document reten-tion list.

Documents will be reviewed annually for destruction if past the retention date. If it is determined the document needs to be retained, the Management representative will reassign a new retention period.

References:
ISO 14001:2004
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1 to 6.
Document Retention List

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Revision: ....

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Procedure operational control (4.4.6)

Purpose:

To describe the company's policy for operational control of activities associated with identified significant environmental aspects and critical processes in line with the Environmental Policy and the company's stated objectives and targets.

Scope:

This procedure covers all operations and activities associated with current, modified, and future significant environmental aspects and ensures that these operations and activities are carried out under controlled conditions.

This procedure covers the OECD requirements as defined in the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Definitions:

- Abnormal Conditions:

  Departing from normal such as emergency situations.

- Normal Conditions:

  Expected or usual state such as day-to-day operating conditions.

- Operational Control Procedure:

  Procedures for ensuring that operations and activities do not exceed specified conditions or performance standards or violate regulatory compliance limits. Operational control procedures include specific operating criteria or specifications in case of equipment maintenance, pollution control equipment, and production processes which must be managed within specified parameters to achieve desired optimization.

- Record:

  A document which furnishes objective evidence of activities performed or results achieved.

- Work Instruction:

  Provides specific steps for accomplishing a task.

Responsibilities:

The Operations Managers are responsible for identifying and documenting the operational controls associated with facility level significant environmental aspects.

It is the responsibility of the Operations Manager to ensure operational control procedures are identified for all operations and activities associated with each of the operational area's significant environmental aspects.

Procedure:

On-site recovery or disposal of waste generated by the process concerned must be carried out in compli-

ance with the applicable laws and regulations and should be recorded appropriately. In case of off-site recovery or disposal, outgoing waste should be handed over only to recovery and/or disposal operations that are properly licensed, permitted or otherwise authorised.

The operations manager is responsible for identifying activities, products, or services that have or can have a significant impact on the environment.

Identification of Environmental Aspects, Significant Environmental Aspects, and Objectives and Targets describes the process for identifying activities, products, or services that have associated significant environmental aspects.

A. Operations Managers are responsible for the evaluation of operational control for various activities and operations conducted within their programme areas.

B. The process is initiated by the identification of those activities and operations that are associated with environmental aspects and/or potential environmental impacts of the company. Tier 1 and Tier 2 evaluations (Section 4.3.1: "Environmental Aspects") should have already identified most of these activities.

C. The Operations Manager will determine if procedures have been established and documented for normal operating conditions and to prevent situations which would lead to deviations from environmental requirements or objectives.

D. The Operations Manager will:

1. Identify the operations, processes, maintenance activities, goods, services, etc. of their Processes that are associated with significant environmental aspects.

2. Describe the procedures that are needed to cover situations where the absence of procedures or controls could lead to deviations from Environmental Policy, objectives or targets ("environmental requirements").

3. Determine the status of those procedures (needed – but none exists; exists but is not documented; or, exists and is documented).

4. Assess procedures compliance with the "Operational Control Specifications" as follows:
    • procedure is established and documented;
    • procedure is maintained, reviewed and updated at least once a year;
    • operating criteria are stipulated;
    • procedure is communicated with suppliers and contractors where applicable; and
    • procedure is in line with the environmental requirements: Environmental Policy, objectives and targets.

5. Develop a plan of action to ensure that all necessary procedures identified are established or modified in order to comply with the specifications.

6. Develop and maintain measures to avoid exposure of employees to unacceptable occupational health and accident risks, related to the properties of the materials they are handling, emissions from those materials and equipment being used. Adequate measures shall include national as well as international regulations, agreements, principles and standards, whether mandatory or voluntary.

E. Operations Managers are responsible for documenting evaluations of specified procedures and ensuring that progress is made to bring the necessary procedures into compliance with this section. The Operational Control Verification Form may be used to facilitate this process.

F. The company should have an adequate plan for closing the facility and for its after care. Applicable laws and regulations, taking into consideration the level of risk, determine this closure plan and any financial guarantee. The plan will be updated periodically and financial guarantees should ensure that the necessary measures are undertaken upon definite cessation of the company's activities to prevent any damage and return the site of operation to a satisfactory state, as required by applicable laws and regulations

References:
ISO 14001:2004

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core performance element CPE-1, 2, 3, 4 and 6.

Environmental Policy, objectives and targets.

Closure and after-care plan [BIR Note – an after-care plan is not necessary for every recycling company]

Operational Control Verification Form

Example of an Operational Control Verification Form

- Identification of activities or goods associated with significant Environmental Aspects

- Description of procedure(s) needed to cover situations where their absence could lead to deviations from environmental requirements

- Status of the procedure(s) (needed non-existant; exists not documented; or exists documented)

- Assessment of procedure(s) compliance with Procedure Operational Control (4.4.6) requirements
    o Procedure is established and documented
    o Procedure is maintained, reviewed and updated
    o Operating criteria are stipulated
    o Communicated with suppliers and contractors
    o Is in line with the environmental requirements

- Plan of action to establish, maintain, review, or update procedure(s) to comply with Procedure Operational Control (4.4.6) requirements

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Procedure emergency preparedness and response (4.4.7)

Purpose:
This procedure outlines the activities for:
- Planning and preparing for a potential environmental emergency that may pose an immediate and significant threat to human health and/or the environment.
- Responding to such a situation if such an event is imminent or occurs.

This procedure also identifies the existing programmes and guidance in place to support these activities.

Scope:
This procedure encompasses all activities and processes at the company.
The procedure applies to the actions of all employees at the plant, as well as the services and products provided by vendors and subcontractors while operating at the facility.

Definitions:
- Emergency incident or emergency situation: Environmental releases that require an emergency response.
- Emergency response: actions taken by personnel outside of the immediate work area to address an environmental accident.

Responsibilities:
- Emergency response coordination shall be in accordance with the applicable Emergency Response Plan.
- The Emergency Response Plan should cover both short-term and long-term remedial activities.
- The Management Representative will in case of an emergency act as emergency coordinator.
- All plant employees are responsible for identifying potential conditions, practices or activities that could lead to an emergency situation and for communicating this observation to their Operations Manager or the Management Representative. Employees shall immediately notify the operation's controller of any emergency condition or pending emergency condition.
- All emergency response activities are to be conducted within boundaries of training levels, appropriate procedures and governmental regulations.

Procedure:
Emergency Planning and Preparation
Emergency planning and preparation activities performed by the company include the following:
- Updating regularly the Emergency Response Plan
- Adequate employee training regarding emergency response
- Review of events and accidents at the company and other similar facilities within and outside the industrial sector

- Practice drills
- Health and safety and environmental compliance audits to identify areas for corrective and preventative action or improvement
- Coordination with local governmental agencies
- Coordination with neighbours and local communities

Potential environmental hazards or activities that could lead to an emergency situation should be identified as part of a Management Review overseen by the Management Representative and the company's ISO team.

A similar review should also occur in the event of significant equipment or process change. Any changes to policies, procedures or instructions to reduce the potential for an emergency situation shall be communicated to all company employees and other affected parties as soon as possible, as well as being incorporated into the plant's environmental training programme.

All changes should be documented according to the Procedure for control of documents 4.4.5.

Emergency Response Plans

Current emergency response procedures include:
- Emergency Response Plan
- Emergency Spill Response Manual
- Chemical Release Emergency Procedure
- Chemical Hazard Evaluation System
- Security and Inspection Programme
- Malfunction & Abatement Plan
- Continuous Emissions Monitoring System Shutdown, Breakdown or Malfunction Reporting

These documents and plans shall be maintained in accordance with existing regulatory, company, or business unit or company requirements.

All emergency response actions conducted by plant or other staff shall be within the boundaries of existing training levels, competencies, personal protection, policies, and applicable regulations. External assistance shall be sought in accordance with the appropriate emergency response plan.

Emergency Response Equipment

Emergency response equipment that may be required, in the event of a spill or potential release, is located within the facility. These locations are identified in the Emergency Spill Response Manuals.

This equipment shall be periodically inspected to ensure that it is stocked, accessible, and appropriate to the current response plans and potential needs.

Critical data

Regulatory records, account data etc. should be backed up and stored in a protected environment. Software systems such as supervisory control and data acquisition essential to process and production will be backed up with the ability to function at other locations.

Notifications

Notifications in the event of an emergency situation or release to the environment shall be reported in accordance with the emergency response plan. This shall include internal, regulatory and public safety officials as appropriate.

In addition, environmental notifications shall also be followed, including all necessary documentation. In all notifications, time is of the essence.

Incident Review

All emergency response actions shall be reviewed and the results provided to the management team and the Management Representative. Items to be included in the review should include:

- Short description of incident
- Date of incident
- Principle cause of incident
- Impacts (if any)
- Description of incident including events leading up to it (in detail)
- Internal (Company personnel) response
- External Organization response (e.g. Fire Brigade)
- Potential system or procedural failures
- Corrective action and/or preventative action taken
- Required changes in policies, procedures or instructions
- Follow-up training or communications

Any resulting corrective and preventative action planning should follow the procedures and documentation requirements identified in the EMS manual, procedure non-conformance and corrective and preventative action.

Responsibilities:

Emergency response coordination shall be in accordance with the applicable Emergency Response Plan.

All employees are responsible for identifying potential conditions, practices or activities that could lead to an emergency situation and communicating this observation to their Operations Manager or the Management Representative. Employees shall immediately notify the operation controller of any emergency condition or pending emergency condition.

Documentation:

All emergency response actions shall be documented in accordance with the Emergency response plan and the environmental notification requirements outlined in the applicable procedure.

Records of these events shall be in accordance with the procedure control of records.

The Management Representative shall maintain a current listing of all emergency plans and take steps necessary to ensure that these plans are current and available.

References:

ISO 14001:2004 Environmental Management System standard

Procedure for control of documents 4.4.5.

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of

Waste, dated 9 June 2004. Core Performance Elements CPE-1 and 5.

Emergency Response Plan

And as appropriate…

Emergency Spill Response Manual

Chemical Release Emergency Procedure

Chemical Hazard Evaluation System

Security and Inspection Programme

Malfunction & Abatement Plan

Continuous Emissions Monitoring System Shutdown, Breakdown or Malfunction Reporting

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Procedure monitoring and measurement (4.5.1)

Purpose:
The purpose of this procedure is to ensure that those operations and activities that can have a significant impact on the environment are measured and monitored on a regular basis in order to track environmental performance and compliance with objectives and targets and legal requirements.

Scope:
The operation's significant environmental impacts which need to be measured and monitored.

Evaluating compliance with relevant legislation and regulations is covered by the procedure to identify the Legal and other Requirements 4.3.2.

Definitions:
Operational monitoring includes the collection of data on the company's systems and processes that may have an environmental aspect and a potentially significant impact on the environment. Examples include air emissions monitoring, waste water quality monitoring, generation of waste for final disposal data and recycling volumes.

Systems monitoring includes those activities focusing on the performance of the company in conforming to its policies and meeting environmental objectives. This includes tracking and reporting on the performance of the main elements of the EMS such as objectives, targets, training, communication, corrective actions etc.

Responsibilities:
It is the responsibility of the Operations Manager to:
- Accurately measure and monitor all site activities and operations which can have a significant environmental impact

It is the responsibility of the Management Representative to:
- Collate, review and summarise the records of environmental performance
- Report on environmental performance

Procedure:
Operational monitoring

The company has a monitoring and recording programme that covers:
- Relevant legal requirements, including key process parameters
- Compliance with applicable safety requirements
- Effluents and emissions
- Incoming, stored and outgoing waste, in particular hazardous waste

Details of monitoring and measurement activities related to the company's significant environmental impacts and improvement projects shall be defined in the Environmental Improvement Programme, along with other measures planned to help the company achieve its objectives and targets.

Records shall be established and maintained to record the outputs of monitoring and measurement activities. All relevant environmental records are to be maintained and made available to the competent authorities according to national legislation and/or local authorisation/licence/permit requirements.

The company will maintain records of the generation, collection, recovery or disposal of waste, its types and amounts. These are to be made available to the competent authorities upon request.

Such records shall show performance against time, e.g. monthly water consumption. Performance data shall typically include quantities, costs or other suitable key characteristics to enable comparison against the company's objectives and targets.

Monitoring/measurement records shall be kept up-to-date.

Monitoring and measurement data shall be analysed in order to evaluate environmental performance.

Systems monitoring
A summary of environmental performance data shall be provided at Management Review meetings where performance shall be assessed against the environmental objectives and targets specified in the Environmental Improvement Programme.

Monitoring and measuring equipment used shall be calibrated in accordance with the Calibration Control Procedure of the Quality Management System and if not present through a certified service supplier.

References:
ISO 14001:2004 Environmental Management System standard
Procedure for control of documents 4.4.5.
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1 and 3.
Monitoring Records
Environmental Improvement Programme
Procedure to identify the Legal and other Requirements 4.3.2.
[Calibration Control Procedure of the Quality Management System.]

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Procedure evaluation of compliance (4.5.2)

Purpose:
The purpose of this procedure is to ensure that the company has a documented means of periodically evaluating compliance with the relevant environmental legislation, the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, Core Performance Elements and the regulations associated with its operation.

Scope:
The company maintains environmental programme compliance on an operational level through routine inspections. Besides that activity, it is important that the company evaluates compliance from a programme level. This approach shall ensure that permits, regulatory changes, and operational changes are incorporated into the company's environmental compliance programme.

This procedure will be reviewed annually and revised when deemed necessary.

Responsibilities:
The Management Representative is responsible for ensuring that operations managers comply with the requirements set forth in the permit conditions and laws and regulations associated with the company's operations as well as all requirements of the EMS and the OECD Core Performance Elements.

The Management Representative reviews and approves all programme and project plans designed to meet or exceed the regulatory requirements for the operation and maintenance activities of the company. In addition, the Management Representative will review all inspection checklists and audit reports to ensure that observations, areas of concern, notices of violation or EMS and OECD CPE non-conformance issues are addressed in a timely and correct manner.

Operations Managers are responsible for knowing and complying with the environmental laws and regulations pertinent to their operations as well as the requirements of the EMS and the OECD's CPEs. Operations Managers are also responsible for meeting the requirements set forth in the permit conditions and laws and regulations associated with the operation. Operations Managers will review all inspections and ensure that all staff are informed, trained and comply with all regulatory requirements associated with their areas of responsibility

Procedure:
Compliance assessments are accomplished through routine inspections conducted by the company's staff to ensure that permit conditions, Core Performance Element requirements and other regulatory requirements associated with its operation are met on a continuous basis.

Operations Managers shall routinely train their staff and monitor their performance for all regulated activ-

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ity within their area of operations. Training and performance monitoring can be accomplished internally or through an appropriate outside resource.

Periodic inspections are also conducted to ensure the company is meeting the minimum guidelines set forth in the permit conditions and laws and regulations associated with the company's operations and the Core Performance Elements.

When periodic site visits are scheduled, Operations Managers will ensure that all personnel, equipment and resources required to complete the activity are available.

The Management Representative shall establish a schedule in which the company will assess its regulatory compliance. The results of this report will be sent to the Management Team for action and for record retention.

Operations Managers are responsible for correcting all deficiencies identified through their internal and external inspections, EMS audits, or as a result of new or modified regulations and permit conditions. Corrective action will be directed by regulatory agencies, the Management Representative, or through corrective/preventative action requests (CAR) as a result of internal audits or observations by the staff. Results of all regulatory inspections and audits will be sent to the Managing Director for review and resolution.

References:

ISO 14001:2004 Environmental Management System standard

Procedure for control of documents 4.4.5.

Procedure monitoring and measurement (4.5.1)

Procedure nonconformity, corrective action and preventative action (4.5.3)

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1, 2 and 3.

Corrective Action Request (CAR) form

Essential elements of a Corrective Action Request (CAR) Form

To:

From:

Name: Signature: Date:

Received by:

Name: Signature: Date:

Non conformance category (as major or minor):

Location:

Statement of requirements (ISO 14401 Standard):

Findings/concerns:

Recommendations:

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Procedure nonconformity, corrective action and preventative action (4.5.3)

Purpose:
This procedure sets out the requirements for dealing with actual and potential nonconformities and for taking corrective and preventative action.

Scope:
This procedure is concerned with nonconformities identified outside the internal EMS audit process.

This procedure covers both nonconformities with the company's EMS procedures as well as nonconformities with the ISO 14001 specification and OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, Core Performance Elements.
Reports of nonconformities may result from external audits or may occur as part of routine operations, where an individual or department may identify a non-conformance

Definitions:
Nonconformity – non-fulfilment of a requirement, whether this is one of the company's EMS procedures, the ISO 14001 standard or the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, Core Performance Elements.

Corrective Action - action taken to eliminate the cause of a detected nonconformity.

Preventative Action - action taken to eliminate the cause of a potential nonconformity or avoid repetition of the same nonconformity.

Responsibilities:
It is the responsibility of the nominated Management Representative to prepare and issue a non-conformance report (NCR) on detection of a nonconformity including, where appropriate, as a consequence of an environmental complaint.

It is the responsibility of all employees to bring suspected nonconformities to the attention of the Management Representative or Operations Manager.

Operations Managers and Site Managers will comply with all corrective and preventative actions prescribed. In exceptional cases, they should inform the Management Representative of reasons why actions cannot or will not be taken, for further consideration and decision.

The Management Representative will establish and maintain a reporting and record keeping system for nonconformities, corrective and preventative actions.

Nonconformities, corrective and preventative actions will be reviewed through the Management Review process

Procedure:

By whatever means a nonconformity is identified, the underlying cause(s) of the nonconformity must be investigated.

Appropriate and timely corrective action must be taken according to the nature of the nonconformity.

Preventative action, such as implementing modifying or enforcing procedures or controls, will be taken to avoid repetition of the nonconformity, or to prevent a potential nonconformity from occurring.

Any corrective or preventative action taken to address the causes of an actual or potential nonconformity must be appropriate to the magnitude of problems and commensurate with the environmental impact encountered.

The Management Representative will implement and maintain a system of reporting and record keeping for nonconformities, corrective and preventative action.

Any changes to the environmental management procedures as a result of corrective or preventative action will be recorded.

The non-conformance report form will detail the nature and scale of the nonconformity, proposed corrective and preventative actions as appropriate, include references to procedure number and date, and will include timescales, where relevant.

Repeated nonconformities of the same nature or significant deviations from procedures (for example, disregard of the procedures, or total absence of required documentation) will be reported to the Operations Manager for action and resolution.

Significant deviations from the environmental policy will be reported to the Management Representative at the next available meeting.

A report will be submitted to the Management representative on a regular basis, reviewing all nonconformities and their respective corrective and preventative actions. The report will include the following:
- review of non-conformance reports
- review of corrective actions
- review of preventative actions
- review of environmental complaints
- review of internal EMS audits
- review of external EMS audits

Where preventative actions involve long term programming, these will be considered in the setting of objectives or targets

References:

ISO 14001:2004 Environmental Management System standard

Procedure nonconformity, corrective action and preventative action (4.5.3)

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1, 2, 3 and 4.

Non-conformance report (NCR)

Essential elements of a Non-Conformance Report (NCR) form

PART A

For completion by person identifying or suspecting a non-conformance:

Name: Signature: Date:

Details of non-conformance (identified or suspected):

PART B

For completion by Environmental Manager:

Recommendations or verdict (as a major or minor / Action required or not):

Responsible party for Corrective or Preventative Action:

Deadline for completion of Corrective or Preventative Action:

Name: Signature: Date:

PART C

For completion by responsible party:

Corrective or Preventative Action taken:

Name: Signature: Date:

Verified by Environmental Manager:

Name: Signature: Date:

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Procedure control of records (4.5.4)

Purpose:

This procedure outlines the requirements and responsibilities for handling, identifying, collecting, filing and retaining environmental records

Scope:

This procedure applies to all records generated by and for the Environmental Management System and the responsibilities involved.

Responsibility:

The Management Representative is responsible for maintaining all records related to EMS audits, Management Reviews, corrective action requests and significant aspects.

The Management Representative is responsible for maintaining documentation change records per the Document Control Procedure.

Operations Managers are responsible for periodically reviewing, updating and maintaining environmental records pertinent to their section. They are also responsible for submitting EMS records to the Management Representative for retention.

Procedure:

The company will establish and maintain procedures for the identification, maintenance and disposition of environmental records.

The records retained include training records and the results of audits and reviews.

The company has developed, implemented and maintained documented procedures for identifying, collecting, indexing, accessing, filing, storing, maintaining and disposing of environmental records in accordance with the current facility, applicable regulatory or legislative requirements, or other requirements to which the company subscribes such as the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004.

Retention times of environmental records are established and recorded.

Environmental management system records are maintained as appropriate to the system and the company to demonstrate conformance to the specific requirements of ISO 14001 and the Core Performance Elements of the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, and other requirements to which the company subscribes.

These records may include pertinent environmental records from suppliers.

Environmental records are legible and traceable to the activity, process, product or service.

Environmental records are stored in such a way as to be readily available and retrievable and protected against deterioration, damage or loss.

References:

ISO 14001:2004 Environmental Management System standard

Procedure control of records (4.5.4)

OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1, 2, 3 and 4.

Retention policy

EMS Procedure nr.

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Revision date:...

Approved by:..

Procedure internal audit (4.5.5)

Purpose:

The purpose of this procedure is to define the internal environmental audit practices at the company.

Scope:

The purpose of auditing is to:
- ensure conformance with the company's policies, systems and procedures,
- assess the effectiveness of environmental activities,
- evaluate the effectiveness of the EMS implementation,
- promote understanding among management, staff and employees, and communicate information to the company's management.

In order to achieve maximum improvement, the audit must: be planned; establish facts; be based on objective evidence; be executed competently; and be reported constructively.

Procedure:

The Management Representative will prepare an internal audit schedule. This schedule will be based on the importance of the environmental activities and the results from previous audits. Those activities that have higher importance or more impacts on the environment, and those activities that have had non-conformance problems in previous audits will be priorities in the scheduling of audits.

Each area within the EMS will be audited at least once a year. Areas to be audited include (but are not limited to):
- EMS Manual and procedures against the ISO 14001:2004 requirements.
- OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Element CPE-1 to 6.
- Other requirements the company has subscribed to.

The Management Representative will define the scope and objectives for each audit. The scope might include:
- any procedures or standards to be considered,
- what department or area is to be audited,
- the type of audit (compliance audit, EMS audit, management audit, etc.),
- any follow-up on problems or non-conformities from previous audits,
- any follow-up on corrective actions as a result of previous audits, and
- any verifications to be done on previous audits, etc.

The purpose of the scope is to tell the auditor in broad terms what they should be looking at.

The Management Representative will select a trained and qualified auditor(s) to conduct each audit. The following conditions are to be considered in the selection of auditors.

Training:

The auditor must be familiar with the latest versions of ISO 14001, 14010, 14011, and 14012 and the OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Element CPE-1 to 6.

The auditor should possess certain attributes as outlined in ISO 14010, 14011, and 14012.

While conducting the audit, the auditor should utilize the Audit Report Form to record the outcome of the audit. In addition, the Auditor Notes Form may be used to record any notes or other information during the audit, and as a checklist for standard audit practices.

Upon completion of the audit, the auditor determines any non-conformities. The auditor, or the Management representative, then issues non-conformance reports per procedures outlined in Section 4.5.2: Non-conformance and Corrective and Preventative Action.

The auditor is responsible for completing the Audit Report Form and for ensuring that this information is communicated to the Management representative. The Audit Report Form is to be retained for future reference.

References:

ISO 14001:2004 Environmental Management System standard
OECD Council Recommendation C(2004)100 on the Environmentally Sound Management (ESM) of Waste, dated 9 June 2004. Core Performance Elements CPE-1 to 6.
Procedure nonconformity, corrective action and preventative action (4.5.3)
Audit report form
Audit notes form

Essential elements of an Audit Report Form

Audit Number:

Title of Audit:

Date(s) Audit Conducted:

Scope / Objectives of Audit:

Auditee (Who / What / Where):

Audit Team

Lead Auditor:

Auditor:

Audit Team:

Reference Documents Reviewed in Audit:

Audit Summary: (summary of audit process including any obstacles encountered, audit findings, reference to supporting evidence, etc.)

Conclusions: (EMS conformance to the EMS audit criteria, whether the system is properly implemented and maintained, whether the internal management review process is able to ensure the continuing suitability and effectiveness of the EMS, etc.)

Distribution List for Audit Report:

Author of Audit Report

Name: Signature: Date:

Lead Auditor

Name: Signature: Date:

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Revision date: Approved by:

Essential elements of an Audit Notes Form

Audit Number:

Title of Audit:

Date(s) Audit Conducted: Auditor Name:

Scope / Objectives of Audit:

Audit Preparation

Preliminary Document Review:

Audit Plan:

Audit-team Assignment:

Working Documents:

Comments

Opening Meeting of Audit Team with Company Management

Date: Location:

Persons present:

Agenda points (outline)

1 - Introductions

2 - Review of Audit Scope, Objectives, Plan and Timetable

3 - Short Summary of methods and procedures for conducting the Audit

4 - Establish official communication link between Audit Team and Company Management

5 - Confirm availability of resources and facilities for the Audit Team

6 - Confirm Date / Time of Closing Meeting

7 - Check Site Safety requirements and Emergency procedures for Audit Team

Collecting Audit Evidence

Audit evidence:

Supporting information:

Reference materials:

Audit Findings

Documentation of findings of non-conformity:

Review with responsible Company Manager:

Comments:

Closing Meeting

Presentation to the Company Management of Audit Findings:

Areas of Disagreement:

Comments:

Summary Comments

Authors Name: Signature: Date:

Based on the information added above and other compiled information the Lead Auditor will prepare and submit the ISO 14001 Audit Report Form

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Revision date: Approved by:

Log of revisions made to this ESM Manual

Rev.	Section	Sub-Section	Paragraph	Change request nr.	Date	Authorised by (name and position)

10. Glossary

BAT	Best available technique
BIR	Bureau of International Recycling
BSC	Balanced Scorecard, a measurement-based strategic management system that provides a method of aligning business activities to the strategy, and monitoring performance of strategic goals over time.
CAR	Corrective Action Request form
CPE	Core Performance Element
EMAS	Eco-management and Audit Scheme
EMP	Environmental Management Policy
EMS	Environmental Management System
EPE	Environmental Performance Evaluation
ESM	Environmentally Sound Management
GMP	Good Manufacturing Practice
ISO	International Standardisation Organisation
ISO TEAM	Team working on implementing ISO management systems
MR	Management Representative
NCR	Non-conformance Report Form
OECD	Organisation for Economic Cooperation and Development
QMS	Quality Management System
SME	Small and Medium-sized Enterprise
SPC	Statistical Process Control

Ⓐ

To be familiar with the terminology, the working definition of **Environmentally Sound Management** is of a *"Scheme for ensuring that wastes and used and scrap materials are managed in a manner that will save natural resources and protect human health and the environment against adverse effects that may result from such waste and materials"*.

30 Industrialised Countries have recommended that Environmentally Sound Management should comprise of an Environmental Management System that incorporates Core Performance Elements. There are 5 fundamentals to the ISO 14001 Environmental Management System and 6 OECD Core Performance Elements and there are 12 Steps to Implementation with 12 procedures that must be followed:

5 fundamentals in the ISO 14001 Environmental Management System
  - Environmental policy
  - Planning (objectives and targets)
  - Implementation and Operation (structure and responsibility)
  - Checking and corrective action
  - Management review (leading to continual improvement)

6 OECD Core Performance Elements (CPEs). The facility should
  - have an applicable Environmental Management System (EMS) in place.
  - take sufficient measures to safeguard Occupational and Environmental Health and Safety.
  - have an adequate Monitoring, Recording and Reporting Programme.
  - have an appropriate and adequate Training Programme for the personnel.
  - have an adequate Emergency Plan.
  - have an adequate plan for closure and after-care.

12 Steps to Implementation (see Part 8):
  - Evaluate the need and goals for implementing an EMS
  - Obtain knowledge about ISO 14001 and the OECD CPEs. Appoint a Management Representative
  - Raise awareness and provide training
  - Initial review and Gap analysis
  - Define environmental aspects and identify hazards
  - Plan the Time Frame and communicate it
  - Draft the EMS Manual and develop the ESM policy
  - Implement the EMS
  - Carry out the Internal Audit, Conduct a Management Review
  - Pre-assessment and application for Certification, and Certification
  - Conduct periodic evaluations, initiate corrective and preventative actions
  - Evaluation and System Maintenance

12 procedures that must be followed. Procedure for/to:
  - identify environmental aspects
  - identify applicable legal and other requirements
  - competence, training and awareness

- internal and external communication
- control of documents
- operational control
- emergency preparedness and response
- monitoring and measurement
- evaluation of compliance
- nonconformity, corrective action and preventative action
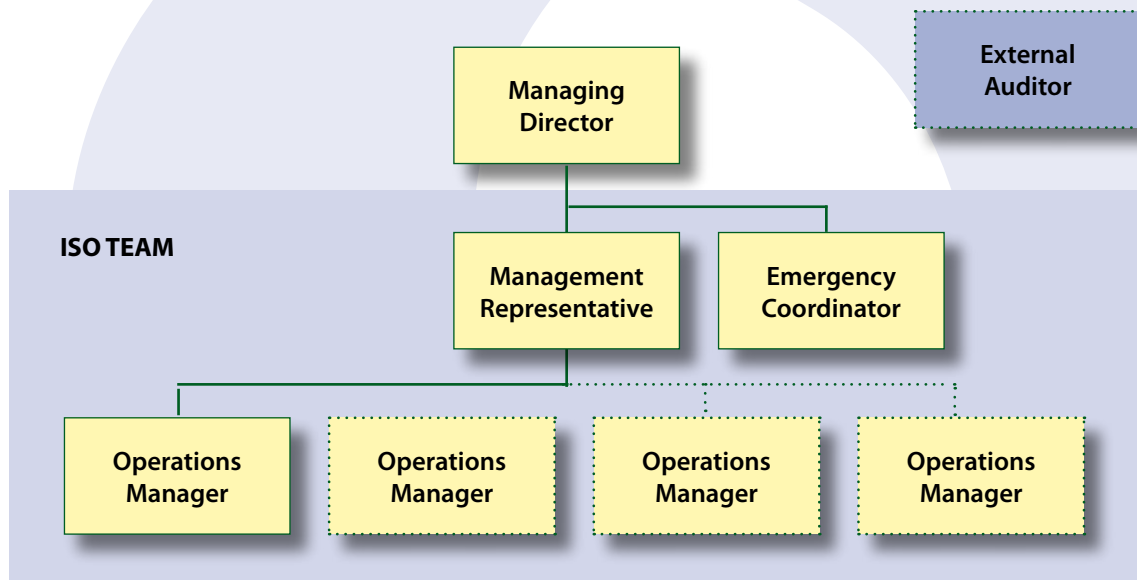- control of records
- internal audit

B

An EMS is good business practice that should be embraced by any well-informed professional management team. ISO 14001 can deliver many benefits, principally because the majority of the implemented EMSs work.

Nevertheless top management must evaluate the risks and the benefits to the company of an EMS, so identify why an EMS is needed and consider if this will improve the strength of the company, now and in the future.

C

Appoint your Management Representative, the Emergency Coordinator, and designate the ISO Team, provide them with the necessary resources on request

D

Check on progress